FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION
504 SOUTH BROADWAY • P.O. BOX 1298 • GLASGOW, KENTUCKY 42142-1298 • (270) 651-2191
JACKIE B. BROWNING, PRESIDENT AND CEO

July 29, 2003

Mr. Thomas M. Dorman, Executive Director
Kentucky Public Service Commission
P.O. Box 615
Frankfort, Kentucky 40602

Case 2003-00298

Dear Mr. Dorman:

Please find enclosed an original and ten (10) copies of Farmers Rural Electric Cooperative Corporation's application for a Certificate of Public Convenience and Necessity and three (3) copies of its 2002-2006 Construction Work Plan.

If you have any question or need additional information, please advise.

Sincerely,

Jackie B Browning

Jackie B. Browning
President & CEO

Enclosures

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION OF FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY	)))))	**CASE NO.** 2003-00298

APPLICATION

The petition of FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION respectively shows:

(a) That Applicant's full name is FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION ("Farmers" or "Applicant").

(b) That Applicant's post office address is Post Office Box 1298, Glasgow, Kentucky 42142-1298.

(c) That Applicant is a nonprofit electric distribution cooperative organized under KRS Chapter 279 and is engaged in the business of distributing retail electric power to member-consumers in the Kentucky counties of Adair, Barren, Edmonson, Grayson, Green, Hart, Larue and Metcalfe.

(d) That a certified copy of Applicant's Articles of Incorporation and all amendments thereto is attached hereto and made a part hereof and marked Exhibit A.

(e) That pursuant to KRS 278.020(1) Applicant seeks a certificate of public convenience and necessity authorizing the construction of the facilities set forth in Applicant's 2002-2006 Construction Work Plan ("CWP").

(f) That Applicant's 2002-2006 CWP has been adopted by Applicant as a course of action to be followed as evidenced by a copy of the resolution adopted by Applicant's board of directors which is attached hereto and made a part hereof and marked Exhibit B.

(g) That Applicant has provided the Public Service Commission ("Commission") with three (3) copies of Applicant's 2002-2006 CWP, including maps required under 807 KAR 5:001, Section 9(2)(d).

(h) That the Executive Summary, which is attached hereto and made a part hereof and marked Exhibit C, shows the facts relied upon for the proposed facilities that are or will be required by public convenience or necessity.

(i) That the proposed facilities set forth in the CWP do not require any franchises or permits from public authorities.

(j) That a full description of the proposed location, route, or routes of the proposed facilities, including a description of the manner in which same will be constructed, is included in the CWP.

(k) That the proposed facilities will not compete with any other public utility, corporation, or person.

(l) That as set forth in RUS Form 740C, which is attached hereto and made a part hereof and marked Exhibit D, the cost estimate for the CWP is $13,270,380.

(m) That Applicant has secured a loan for the funds necessary to construct the proposed facilities from the United States of America, acting by and through the Administrator of the Rural Utilities Service ("RUS").

(n) That pursuant to KRS 278.300(10) the Commission's approval of evidences of indebtedness in connection with said loan is not required.

(o) That Applicant's estimated cost of operation after the CWP is completed is shown in Applicant's 2002-2012 Ten Year Financial Forecast with excerpts from it attached hereto and made a part hereof and marked Exhibit E.

(p) That the proposed facilities are necessary and the most feasible, environmentally acceptable, and economical means to furnish reliable and dependable service to Applicant's member-consumers.

(q) That pursuant to KRS 322.340 the Applicant's CWP was prepared, signed, sealed, and dated by a registered engineer in Kentucky as evidenced by the CWP.

WHEREFORE, Applicant asks that the Public Service Commission of the Commonwealth of Kentucky make an order issuing a Certificate of Convenience and Necessity authorizing Applicant to complete the construction of the facilities included in Applicant's 2002-2006 CWP.

Dated at Glasgow, Kentucky this 29th day of July 2003.

FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION

Jackie B. Browning
President & CEO

I, Jackie B. Browning, President and CEO of FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION, do hereby declare that the statements contained herein are true and correct to the best of my knowledge.

Jackie B. Browning
President & CEO

SUBSCRIBED AND SWORN to before me by Jackie B. Browning, this 29th day of July 2003.

Bonnie Richie
Notary Public, Kentucky State-at-Large
My Commission Expires 6/16/05

EXHIBIT A

ARTICLES OF INCORPORATION

0016961.09

John Y. Brown III
Secretary of State

Received and Filed
06/07/2000 09:21 AM

Fee Receipt: $2.00

AMENDED ARTICLES OF INCORPORATION OF FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION

Pursuant to the provisions of the Kentucky Business Corporation Act and KRS 279.010 to 279.220, the undersigned Corporation executes these Amended Articles of Incorporation and states that each and every article is being amended, the text of which amendments are set forth below. The undersigned Corporation further states that the following Amended Articles of Incorporation were approved by at least two-thirds of the members of the Board of Directors and adopted by a vote representing not less than a majority of the votes entitled to be cast by the members, pursuant to the provisions of KRS 279.050, at a regular meeting of the members held on May 22, 2000, at which a quorum was present.

ARTICLE I of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

1. Corporate Name. The name of the Corporation shall be "Farmers Rural Electric Cooperative Corporation."

ARTICLE II of the Articles of Incorporation, as such Article was amended by Articles of Amendment filed December 14, 1981, shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

2. Purpose. The purpose or purposes for which the Corporation is formed are to conduct an electric generation, transmission, distribution or service non-profit cooperative corporation to produce, transmit, distribute or furnish energy to any person, firm, association, corporation or body politic, or subdivision thereof, and/or to provide electrical devices, wiring and equipment and any services that are deemed advisable or desirable to operate a utility and to perform all such other acts and to have all such other powers as are not prohibited by law.

STATE OF KENTUCKY
COUNTY OF BARREN
I, Pam Hodges Browning, Clerk of Barren County Court, do certify that the foregoing instrument is a full, true and complete copy as the same appears of record in my office in Corporation Book 9 Page 62
Witness my hand and official seal this the 22 day of July 2003
PAM HODGES BROWNING C.B.C., D.C.
BY Pamela Browning

ARTICLE III of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

3. Principal Office. The principal office of the Corporation shall be located at 504 South Broadway, Glasgow, Barren County, Kentucky 42141.

ARTICLE IV of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

4. Territory of Operations. The operations of the Corporation are to be conducted in the Counties of Adair, Barren,

Return to: Bryan K. Mattingly
Brown, Todd + Heyburn
250 W. Main St., Ste. 2700
Lexington, KY 40507

Edmonson, Grayson, Green, Hart, Larue and Metcalfe and in such other counties as such operations may from time to time become necessary or desirable in the interest of this Corporation or of its members.

ARTICLE V of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

5. Number of Directors. The number of directors of the Corporation shall be seven.

ARTICLE VI of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows

6. Period of Duration. The duration of the Corporation is perpetual.

ARTICLE VII of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

7. Capital Stock. The Corporation shall have no capital stock, and the property rights and interests of each member shall be equal.

Article VIII of the Articles of Incorporation, as such Article was amended by the Amended Articles of Incorporation filed July 27, 1939, shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

8. Terms Upon Which Members Admitted. Any person, firm, association, corporation or body politic or subdivision thereof may become a member in the Corporation by:

(a) making a written application for membership therein;

(b) agreeing to purchase from the Cooperative electric energy as specified in the Bylaws of the Cooperative;

(c) agreeing to comply with and be bound by the Articles of Incorporation of the Corporation and its Bylaws and any Amendments thereto and such rules and regulations as may from time to time be adopted by the Board of Directors; and

(d) paying the membership fee as specified in the Bylaws of the Corporation;

provided, however, that no person, firm, association, corporation or body politic or subdivision thereof shall become a member unless and until he, she or it has been accepted for membership by the Board of Directors. No member may hold more than one membership in the Corporation, and no membership in the Corporation shall be transferable, except as provided in the Bylaws.

Article IX of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

9. Terms Upon Which Members Terminated.

(a) Any member may withdraw from membership upon compliance with such uniform tests and conditions as the Board of Directors may prescribe.

(b) The Board of Directors of the Corporation may, by the affirmative vote of not less than two-thirds (2/3) of the members thereof, expel any member of the Corporation who shall have violated or refused to comply with any of the provisions of the Articles of Incorporation or the Bylaws of the Corporation or any rules or regulations adopted from time to time by the Board of Directors, but only if such member shall have been given written notice by the Secretary of the Corporation that such failure makes him liable to expulsion and such failure shall have continued for at least ten days after such notice was given. Any member so expelled may be reinstated as a member by a vote of the Board of Directors.

(c) The membership of a member who for a period of six (6) months after service is available to him, has not purchased electric energy from the Corporation, or of a member who has ceased to purchase energy from the Corporation, may be canceled by resolution of the Board of Directors.

(d) Upon the withdrawal, death, cessation of existence or expulsion of a member, the membership of such members shall thereupon terminate. Termination of membership in any manner shall not release a member or his estate from any debts due the Corporation.

(e) In case of withdrawal or termination of membership in any manner, the Corporation shall repay to the member the amount of the membership fee paid by him; provided, however, that the Corporation shall deduct from the amount of the membership fee the amount of any debts or obligations owed by the member to the Corporation.

Article X of the Articles of Incorporation, which Article was repealed by Amended Articles of Incorporation filed on July 27, 1939, is replaced so that, as amended, said Article shall read as follows:

> 10. Indemnification. Each person who is or becomes an officer or director of the Corporation shall be indemnified and advanced expenses by the Corporation with respect to all threatened, pending or completed actions, suits or proceedings in which that person was, is, or is threatened to be made a named defendant or respondent because he is or was a director or officer of the Corporation. This Article obligates the Corporation to indemnify and advance expenses to its officers or directors only in connection with proceedings arising from that person's conduct in his official capacity with the Corporation to the extent permitted by the Kentucky Business Corporation Act, as amended from time to time. The indemnification and advancement of expenses provided by this Article shall not be deemed exclusive of any other rights to which directors and officers may be entitled under any agreement, vote of members or disinterested directors, or otherwise. The Corporation may indemnify and advance expenses to any employee or agent to the fullest extent permitted by law.

Article XI of the Articles of Incorporation shall be deleted in its entirety and replaced so that, as amended, said Article shall read as follows:

> 11. Limitation of Director Liability.
>
> (a) Except as otherwise provided by subsection (b) below, no director of the Corporation shall have any personal liability to the Corporation or its members for monetary damages for breach of his duties as a director.
>
> (b) Nothing in Article 11(a) above shall be deemed or construed to eliminate or limit the liability of a director for:
>
> (i) Any transaction in which the director's personal financial interest is in conflict with the financial interests of the Corporation or its members;
>
> (ii) Acts or omissions not in good faith or which involve intentional misconduct or are known to the director to be a violation of law; or
>
> (iii) Any transaction from which the director derived an improper personal benefit.

The Articles of Incorporation shall be amended to include the following additional Article:

12. Registered Agent. The street address of the Corporation's registered office shall be 504 South Broadway, Glasgow, Kentucky 42141. The name of the Corporation's registered agent at that office shall be Jackie B. Browning.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the undersigned hereby executes these Amended Articles of Incorporation on this the 2nd day of June, 2000.

FARMERS RURAL ELECTRIC
COOPERATIVE CORPORATION

By: Jackie B Browning
Jackie B. Browning, President

Attested:

FARMERS RURAL ELECTRIC
COOPERATIVE CORPORATION

By: C F Martin Jr
C. F. Martin, Jr., Secretary

STATE OF KENTUCKY)
) SS.
COUNTY OF BARREN)

BEFORE ME, a Notary Public in and for Kentucky personally appeared the above-named Farmers Rural Electric Cooperative Corporation by Jackie B. Browning, its President, and C. F. Martin, Jr., its Secretary, who each acknowledged that they did execute and attest the foregoing Amended Articles of Incorporation for and on behalf of the Corporation by authority of its Board of Directors and that the same is their free act and deed and the free act and deed of the Corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at Barren Co. Ky this 2nd day of June, 2000.

Linda S. Towne
NOTARY PUBLIC

My commission expires: 6-10-2002

DOCUMENT NO: 87585
RECORDED ON: JUNE 19,2000 01:33:06PM
TOTAL FEES: $15.00
COUNTY CLERK: PAM HODGES BROWNING
COUNTY: BARREN COUNTY CLERK
DEPUTY CLERK: KAYE SEWELL

BOOK A019 PAGES 62 - 67

EXHIBIT B

BOARD RESOLUTION

FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION
504 SOUTH BROADWAY • P.O. BOX 1298 • GLASGOW, KENTUCKY 42142-1298 • (270) 651-2191
JACKIE B. BROWNING, PRESIDENT AND CEO

BOARD RESOLUTION
2002 – 2006 CONSTRUCTION WORK PLAN

WHEREAS, the 2002 – 2006 Construction Work Plan in the amount of $13,270,380 has been prepared by the engineering staff of Farmers Rural Electric Cooperative Corporation; now, therefore, be it

RESOLVED, that the Board of Directors of Farmers Rural Electric Cooperative Corporation hereby adopts the 2002 – 2006 Construction Work Plan as a course of action to be followed, or until amended with the approval of the Rural Utilities Service.

###

I, Eddie Hatchett, Secretary/Treasurer of Farmers Rural Electric Cooperative Corporation, do hereby certify that the above is a true and correct copy of a resolution adopted at the meeting of the Board of Directors of Farmers Rural Electric Cooperative Corporation on June 27, 2002 at which meeting a quorum was present and voted.

Eddie Hatchett

Eddie Hatchett, Secretary/Treasurer

EXHIBIT C

EXECUTIVE SUMMARY

PURPOSE OF REPORT

This report documents the February 2002 engineering analysis of, and summarizes the proposed construction for, Farmers Rural Electric Cooperative Corporation's (FRECC) electric distribution system for the four-year planning period of 07/02 thru 06/06.

The report also provides engineering support, in the form of descriptions, costs and justification of required new facilities, for a loan application to RUS to finance the proposed construction program.

RESULTS OF PROPOSED CONSTRUCTION

Upon completion of construction of the facilities proposed herein, the system will provide adequate and dependable service to 22,800 residential/farm consumers using an average of 1210 kWH per consumer per month, and 1349 large power and special loads which are provided for on an individual basis. It is estimated there will be 1900 idle services.

GENERAL BASIS OF STUDY

The 2006 projected number of consumers and total peak system load were taken directly from the cooperative's 2000 Power Requirements Study (PRS) as approved by RUS.

The cooperative's 1996 Long-Range Plan (LRP) load projections and recommendations were followed for this four-year planning period. All of the construction proposed herein is consistent with the LRP unless otherwise noted and explained.

The cooperative's 2002 operations and maintenance review, (Review Rating Summary; RUS Form 300), was used to determine construction required to replace physically deteriorated equipment and material, upgrade portions of the system to conform with code or safety requirements, and/or improve reliability or quality of service.

New distribution, transmission, and power supply construction requirements were considered simultaneously as a "one system" approach for the orderly and economical development of the total system. All of the proposed construction and recommendations herein, relative to power supply and delivery, were discussed with the cooperative's power supplier, East Kentucky Power Cooperative (EKPC).

A complete list of the lines and equipment, and their estimated cost, (all based on recent historical data), required to serve 2,840 new members is developed in Section III-A. A similar list and cost of necessary service upgrades to existing members is in Section III-B.

An analysis, using as a basis RUS guidelines and the design criteria herein, of thermal loading, voltages, physical conditions and reliability was performed on all of the substations, distribution lines and major equipment of the existing system. Milsoft software was used to analyze the distribution circuits during the 2000 / 2001 winter substation peak loading periods. A sample printout is in Section A of the Appendix. The exhibits in Section II form the rest of the basis of this analysis.

For each deficiency that was determined, alternate solutions were investigated and economically evaluated, so that the most cost effective construction, if required, could be proposed. A sample computer analysis used to determine the most economical alternate plans is in Section A of the Appendix.

SERVICE AREA & POWER SUPPLY

Farmers Rural Electric Cooperative Corporation (FRECC), whose headquarters are in Glasgow, Kentucky, provides service in the rural areas of three counties and small portions of six counties in the south central portion of the state as shown on Map IB-1. The 1,120 square mile service area is comprised mostly of rolling, forested hills and has two small lakes. FRECC's service area surrounds Glasgow, (2000 population of 15,000), which has its own electric system. Several of the other most populated areas are served by Kentucky utilities, a private power company.

Most of the economy of this area is based on commercial services for the tourist industry and agriculture. The cooperative serves several oil wells, however oil production in the area is declining. FRECC has and will continue to serve the moderate growth of new commercial, small manufacturing and residential consumers adjacent to Glasgow.

The following data is from FRECC's 12/31/01 REA Form 7:

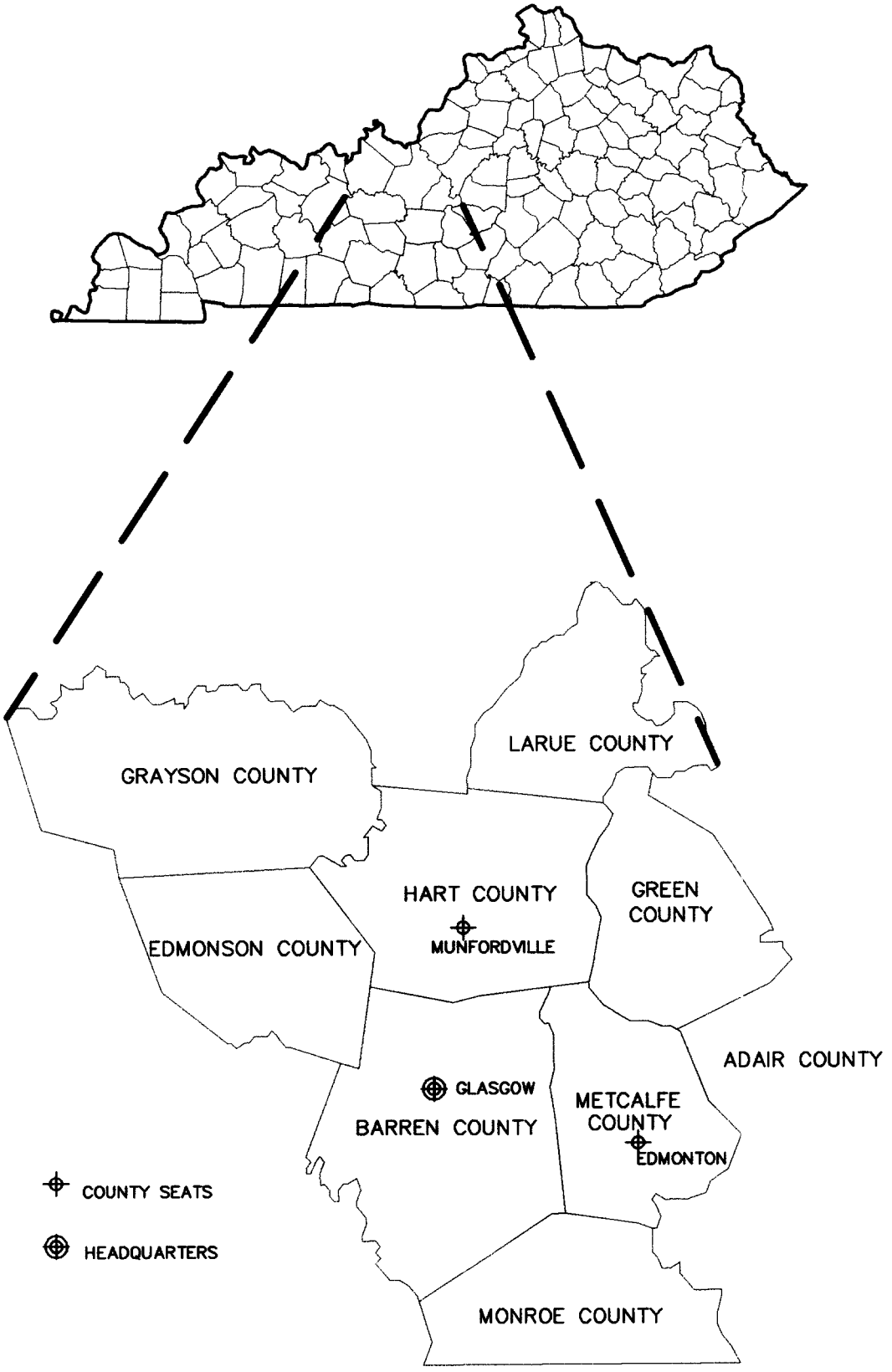
Number of Consumers:	21,620
MWH Purchased:	478,742
MWH Sold:	454,105
Maximum Non-Coincident kW Demand	105,679
Total Utility Plant:	$46,035,763 ($2,129 / member)
Consumers/mile:	6.52

There are 45 primary distribution circuits totaling 3,318 miles of line served from twelve distribution substations. Thirty-one of the circuits are partially energized at 14,400/25,000 Volts, grounded wye, the remainder are at 7,200/12,470 volts, grounded wye. All primary lines built since 1964 have been insulated for 14,400/25,000 Volts. Installed conductor sizes range from #8 copperweld to 795 MCM Aluminum. Almost all new primary construction is overhead with only a small amount of existing plant being underground primary.

East Kentucky Power Cooperative (EKPC) provides all of power and energy needs to Farmers Rural Electric Cooperative Corporation, plus 16 other distribution cooperatives, (see Map IB-2), by virtue of a standard "all requirements" contract. EKPC is a RUS financed G & T cooperative with offices in Winchester, Kentucky.

EKPC constructs, owns, operates and maintains the twelve distribution substations and 69,000 Volt transmission lines which supply FRECC's distribution system. The predominant substation low-side voltage is 14,400/25,000 Volts, grounded wye.

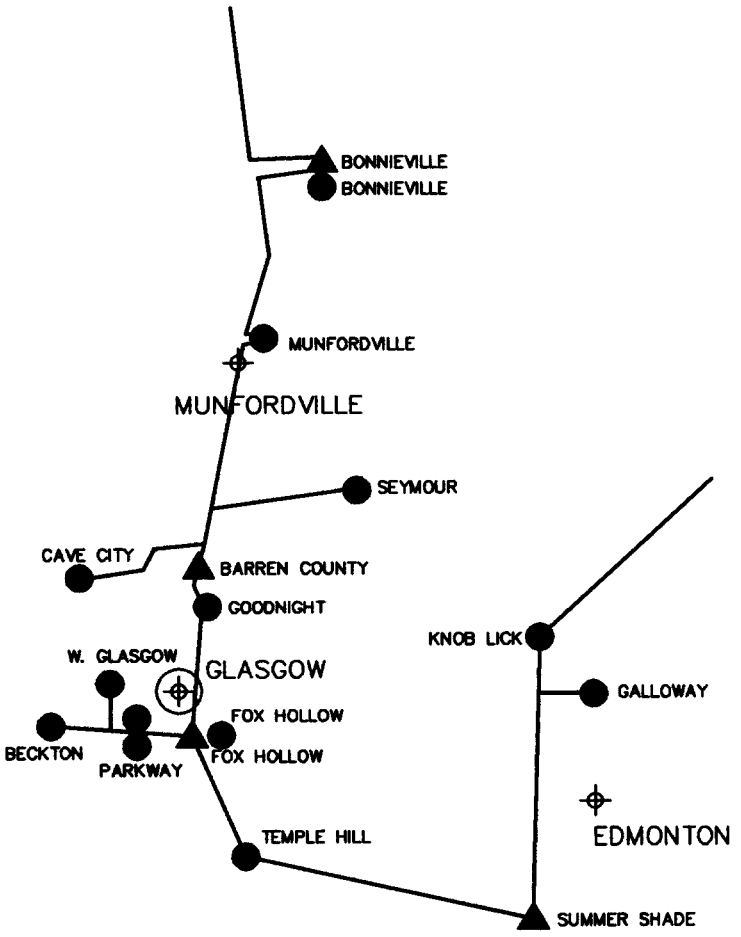
FARMERS RURAL ELECTRIC SERVICE AREA
KENTUCKY 34 BARREN



EAST KENTUCKY POWER COOPERATIVE'S SUBSTATION AND TRANSMISSION NETWORK

FOR

FARMERS RURAL ELECTRIC SERVICE AREA
KENTUCKY 34 BARREN



COUNTY SEATS

HEADQUARTERS

SUBSTATIONS (69 kV)

NEW SUBSTATIONS (69 kV)

SUBSTATIONS (161 kV)

POWER SUPPLY (SUBSTATIONS)

The 02 - 06 CWP does not contain any substation justifications. Fox Hollow substation will be constructed during the work plan period. No substations will become overloaded during the construction work plan period. FRECC will continue to monitor all substation loading with EKPC.

SUMMARY OF PROPOSED 4-YR CONSTRUCTION WITH COSTS

CODE	EXT	ITEM #	DESCRIPTION	MILES	ESTIMATED COST 1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	TOTAL
101			40 - UG NEW CONSUMERS	8.0	50,000	50,000	50,000	50,000	200,000
102			2800 - OH NEW CONSUMERS	163.0	810,000	834,300	859,329	885,109	3,388,738
100			**NEW DISTRIBUTION LINES**	**171.0**	**860,000**	**884,300**	**909,329**	**935,109**	**3,588,738**
339 *		3-3-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.9	81,700				81,700
342 *		9-1-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.0	86,600				86,600
343 *		2-5-C	3-PH AND 1-PH, CONV 12.47 - 25 KV	14.0		135,000			135,000
345 *		2-5-B	1-PH, CONV 7.2 - 14.4 KV	9.5			79500		79,500
347 *		5-4-G	CONV 1-PH TO 3-PH, #1/0 ACSR TO # 1/0 ACSR	1.3	55,900				55,900
349 *		7-2-D	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.8		120,400			120,400
351 *		8-2-B	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.9	259,450				259,450
361		1-2-A	3-PH, RECOND #1/0 ACSR TO #397 ACSR	0.2			4,300		4,300
362		1-2-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.2			8,600		8,600
363		1-2-C	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.7			30,100		30,100
364		2-3-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	9.8			100,150		100,150
365		2-4-A	CONV 1-PH TO 2-PH, RECOND #4 ACSR TO # 1/0 ACS	1.4			60,200		60,200
366		3-4-A	1-PH, CONV 7.2 - 14.4 KV	2.8				25,400	25,400
367		3-4-B	1-PH, CONV 7.2 - 14.4 KV	0.3				2,650	2,650
368		4-1-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.6		263,800			263,800
369		10-2-A	3-PH, RECOND #4 ACSR TO #4/0 ACSR, CONV 12.47 -	5.0				60,250	60,250
370		7-3-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.0				43,000	43,000
371		8-2-B	1-PH, CONV 7.2 - 14.4 KV	8.6				82,550	82,550
372		9-1-A	1-PH, CONV 7.2 - 14.4 KV	1.7				16,100	16,100
373		9-1-B	1-PH, CONV 7.2 - 14.4 KV	1.0				9,500	9,500
374		ALL-ALL-A	CONDUCTOR REPLACEMENT	120.0	330,000	330,000	330,000	330000	1,320,000
300			**LINE CONVERSIONS**	**235.7**	**813,650**	**849,200**	**612,850**	**569,450**	**2,845,150**
601			TRANSFORMERS & METERS		327,710	861,981	874,969	888,388	2,953,048
602			SERVICE UPGRADES		55,080	56,732	58,434	60,187	230,433
603			SECTIONALIZING EQUIPMENT		23,350	23,350	23,350	23,350	93,400
604			REGULATOR STATIONS		72,350	72,350	72,350	72,350	289,400
605			CAPACITORS		5,000	5,000	5,000	5,000	20,000
606			POLE REPLACEMENTS (2468 POLES TOTAL)		492,941	502,132	505,940	521,365	2,022,378
609			AUTOTRANSFORMERS		20,550	20,550	20,550	20,550	82,200
600			**DISTRIBUTION EQUIPMENT**		**996,981**	**1,542,095**	**1,560,593**	**1,591,190**	**5,690,859**
701			SERCURITY LIGHTS		98,820	101,655	104,895	108,135	413,505
702			AMR COMPUTER AND COMMUNICATION HARDWARE		0	244,043	244,043	244,043	732,128
700			**OTHER DISTRIBUTION EQUIPMENT**		**98,820**	**345,698**	**348,938**	**352,178**	**1,145,633**
			Total						**13,270,380**

* CARRYOVER

SUBSTATION TRANSFORMER LOAD DATA

HISTORICAL AND PROJECTED WINTER PEAK KW DEMANDS

	SUBSTATION	TRANSFORMER #	TRANSFORMER KVA	TRANSFORMER CLASS	ACTUAL 12/19/2000	PROPOSED SYSTEM 06	MAX LOAD % RATING
1.	GOODNIGHT	3	4,667	F/A	10,653	12,091	86%
* 2.	MUNFORDVILLE	1	14,400	F/A	15,909	17,873	124%
* 3.	TEMPLE HILL	1	14,400	F/A	14,690	17,494	121%
4.	KNOB LICK	1	11,200	O/A	9,348	11,115	99%
* 5.	BECKTON	1	14,400	F/A	14,204	17,030	118%
6.	CAVE CITY	3	4,667	F/A	8,856	11,752	84%
7.	PARKWAY I	1	14,400	F/A	17,504	12,704	88%
***	PARKWAY II	1	14,400	F/A		9,520	66%
8.	GALLOWAY	1	14,400	F/A	7,505	12,518	87%
9.	BONNIEVILLE	1	5,600	O/A	3,663	4,694	84%
10.	WEST GLASGOW	1	11,200	O/A	5,146	8,528	76%
11.	SEYMOUR	1	11,200	O/A	2,863	6,568	59%
** 12.	FOX HOLLOW	1	11,200	O/A		3,053	27%
	TOTALS:		**153,601**		**110,341**	**144,940**	

* Exceeds base rating, but falls within design criteria of 130% winter loading.

** Under construction. Scheduled for completion during the fall of 2002. This substation will relieve loading from Temple Hill and Parkway.

*** Additional transformer 3 phase transformer installed to serve Large Power load.

F/A - Forced Air
O/A - Open Air

EXHIBIT D

RUS FORM 740C

USDA-RUS

Form Approved
OMB No. 0572-0032

COST ESTIMATES AND LOAN BUDGET

FOR ELECTRIC BORROWERS

To: U.S. Dept. of Agriculture, RUS, Washington, D. C. 20250

BORROWER AND LOAN DESIGNATION: FARMERS RECC - KY 34 AP8 2002-2006 Work Plan

COST ESTIMATES AS OF: (Month, Year) Jun-02

INSTRUCTIONS *See EOM-4 Guideline for the Implementation of 7 CFR 1711.1*

SECTION A. COST ESTIMATES

LOAN PERIOD 4 **YEARS**

				BORROWER'S COST ESTIMATES	RUS USE ONLY
1. DISTRIBUTION					
100 a. New Line: (Excluding Tie-Lines)					
Construction		Consumers	Miles		
101	Underground	40	8.00	$200,439	
102	Overhead	2800	163.00	3,388,738	
	Total Consumer	2840	Total Miles 171.00		
			Less Contributions		
			Subtotal (New Line).....	$3,589,177	
a.(1) Major Development : (site specific code 100)					
			Subtotal (Major Development).....		
			Subtotal All code 100.....	$3,589,177	
200 b. New Tie-Lines					
Line Designation			Miles		
				$0	
			Subtotal from page 1A ..... Miles		
			Subtotal (Includes subtotals from pages 1A)... Miles	$0	
300 c. Conversion and Line Change					
Line Designation			Miles		
Attachment A			235.70	$2,845,150	
			Subtotal from page 1A..... Miles		
			Subtotal . (Includes subtotals from pages 1A) ... Miles 235.70	$2,845,150	
400 d. New Substations, Switching Stations, Metering Points, etc.					
Station Designation		kVA	kV to kV		
				$0	
			Subtotal.....	$0	

ATTACHMENT A

FRECC CWP: I-C

SUMMARY OF PROPOSED 4-YR CONSTRUCTION WITH COSTS

CODE	EXT	ITEM #	DESCRIPTION	MILES	ESTIMATED COST 1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	TOTAL
101			40 - UG NEW CONSUMERS	8.0	50,000	50,000	50,000	50,000	200,000
102			2800 - OH NEW CONSUMERS	163.0	810,000	834,300	859,329	885,109	3,388,738
100			NEW DISTRIBUTION LINES	171.0	860,000	884,300	909,329	935,109	3,588,738
339 *		3-3-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.9	81,700				81,700
342 *		9-1-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.0	86,600				86,600
343 *		2-5-C	3-PH AND 1-PH, CONV 12.47 - 25 KV	14.0		135,000			135,000
345 *		2-5-B	1-PH, CONV 7.2 - 14.4 KV	9.5			79500		79,500
347 *		5-4-G	CONV 1-PH TO 3-PH, #1/0 ACSR TO # 1/0 ACSR	1.3	55,900				55,900
349 *		7-2-D	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.8		120,400			120,400
351 *		8-2-B	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.9	259,450				259,450
361		1-2-A	3-PH, RECOND #1/0 ACSR TO #397 ACSR	0.2			4,300		4,300
362		1-2-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.2			8,600		8,600
363		1-2-C	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.7			30,100		30,100
364		2-3-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	9.8			100,150		100,150
365		2-4-A	CONV 1-PH TO 2-PH, RECOND #4 ACSR TO # 1/0 ACS	1.4			60,200		60,200
366		3-4-A	1-PH, CONV 7.2 - 14.4 KV	2.8				25,400	25,400
367		3-4-B	1-PH, CONV 7.2 - 14.4 KV	0.3				2,650	2,650
368		4-1-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.6		263,800			263,800
369		10-2-A	3-PH, RECOND #4 ACSR TO #4/0 ACSR, CONV 12.47 -	5.0				60,250	60,250
370		7-3-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.0				43,000	43,000
371		8-2-B	1-PH, CONV 7.2 - 14.4 KV	8.6				82,550	82,550
372		9-1-A	1-PH, CONV 7.2 - 14.4 KV	1.7				16,100	16,100
373		9-1-B	1-PH, CONV 7.2 - 14.4 KV	1.0				9,500	9,500
374		ALL-ALL-A	CONDUCTOR REPLACEMENT	120.0	330,000	330,000	330,000	330000	1,320,000
300			LINE CONVERSIONS	235.7	813,650	849,200	612,850	569,450	2,845,150
601			TRANSFORMERS & METERS		327,710	861,981	874,969	888,388	2,953,048
602			SERVICE UPGRADES		55,080	56,732	58,434	60,187	230,433
603			SECTIONALIZING EQUIPMENT		23,350	23,350	23,350	23,350	93,400
604			REGULATOR STATIONS		72,350	72,350	72,350	72,350	289,400
605			CAPACITORS		5,000	5,000	5,000	5,000	20,000
606			POLE REPLACEMENTS (2468 POLES TOTAL)		492,941	502,132	505,940	521,365	2,022,378
609			AUTOTRANSFORMERS		20,550	20,550	20,550	20,550	82,200
600			DISTRIBUTION EQUIPMENT		996,981	1,542,095	1,560,593	1,591,190	5,690,859
701			SERCURITY LIGHTS		98,820	101,655	104,895	108,135	413,505
702			AMR COMPUTER AND COMMUNICATION HARDWARE		0	244,043	244,043	244,043	732,128
700			OTHER DISTRIBUTION EQUIPMENT		98,820	345,698	348,938	352,178	1,145,633
			Total						**13,270,380**

* CARRYOVER

SECTION A. COST ESTIMATES *(cont.)*	BORROWER'S COST ESTIMATES	RUS USE ONLY
500 e. Substation, Switching Station, Metering Point Changes		
Station Designation / Description of Changes	$0	
Subtotal	$0	
600 f. Miscellaneous Distribution Equipment		
601 (1) Transformers and Meters		
Construction / Transformers / Meters		
Underground $39,034 AMR $1,575,060	$1,614,094	
Overhead $1,159,109 $179,845	1,338,954	
Subtotal code 601 ... (included in total of all 600 codes below)	$2,953,048	
602 (2) Sets of Service Wires to increase Capacity	230,433	
603 (3) Sectionalizing Equipment	93,400	
604 (4) Regulators	289,400	
605 (5) Capacitors	20,000	
606 (6) Poles	2,022,378	
609 (7) Autotransformers	82,200	
(8)		
(9)		
(10)		
(11)		
Subtotal ALL 600 codes	$5,690,859	
700 g. Other Distribution Items		
(1) Engineering Fees		
701 (2) Security Lights	413,505	
(3) Reimbursement of General Funds (see attached)	4,957,181	
702 (4) AMR	732,128	
Subtotal	$6,102,814	
TOTAL DISTRIBUTION	**$18,228,000**	
800 2. Transmission		
a. New Line		
Line Designation / Voltage / Wire Size / Miles		
Total Miles 0.00		
Subtotal	$0	

KY 34 AN8 – 740c

Attachment B – Reimbursement Schedule

Work Order Inventory		Special Equipment
7/ 2000 #791M	$ 12,387.61	0
8/2000 #792M	28,690.82	16,264.11
9/2000 #793M	52,473.15	87,523.00
10/2000 #794	213,598.57	72,796.01
11/2000 #795	246,285.65	0
12/2000 #796	156,678.16	44,043.16
1/2001 #797	158,282.84	40,956.54
2/2001 #798	167,616.37	54,074.33
3/2001 #799	217,393.32	25,686.97
4/2001 #800	166,574.41	16,935.00
5/2001 #801	180,549.91	52,381.00
6/2001 #802	168,472.34	61,645.00
7/2001 #803	127,076.28	61,143.30
8/2001 #804	233,641.05	31,034.00
9/2001 #805	145,401.63	42,876.00
10/2001 #806	196,696.27	36,275.00
11/2001 #807	292,568.76	36,137.00
12/2001 #808	179,008.01	0
1/2002 #809	247,317.51	20,194.48
2/2002 #810	241,572.26	8,708.80
3/2002 #811	177,735.18	13,606.60
4/2002 #812	155,866.39	24,092.40
5/2002 #813	198,131.50	3,640.00
6/2002 #814	213,449.34	29,701.00
Subtotal	4,177,467.33	779,713.70
TOTAL	$4,957,181.03	

SECTION A. COST ESTIMATES *(cont.)*

		BORROWER'S COST ESTIMATES	RUS USE ONLY
900	b. New Substation, Switching Station, etc.		
	Station Designation / kVA / kV TO kV		
	Subtotal		
1000	c. Line and Station Changes		
	Line/Station Designation / Description of Changes		
	Subtotal		
1100	d. Other Transmission Items		
	(1) R/W Procurement		
	(2) Engineering Fees		
	(3) Reimbursement of General Funds (see schedule)		
	(4)		
	Subtotal		
	TOTAL TRANSMISSION.....	**$0**	
1200	3. GENERATION (including Step-up Station at Plant)		
	a Fuel ____ Nameplate Rating ____ kW		
	b.		
	TOTAL GENERATION.....	**$0**	
1300	4. HEADQUARTERS FACILITIES		
	a. New or additional Facilities (Attach RUS Form 740g)		
	b.		
	TOTAL HEADQUARTERS FACILITIES	**$0**	

COST ESTIMATE AND LOAN BUDGET FOR ELECTRIC BORROWERS	BORROWER AND LOAN DESIGNATION FARMERS RECC - KY 34 AP8

	SECTION A. COST ESTIMATES (cont.)	BORROWER'S COST ESTIMATES	RUS USE ONLY
1400	5. ACQUISITIONS		
	a. _____ Consumers _____ Miles		
	b.		
	TOTAL ACQUISITIONS.....	$0	
1500	6. ALL OTHER		
	a.		
	b.		
	c.		
	d.		
	e.		
	TOTAL ALL OTHER.....	$0	

SECTION B. SUMMARY OF AMOUNTS AND SOURCES OF FINANCING

1. GRAND TOTAL - ALL COSTS			$18,228,000	
2. FUNDS AND MATERIALS AVAILABLE FOR FACILITIES				
a. Loan Funds		$0		
b. Materials and Special Equipment		0		
c. General Funds	Purpose 1	$0.00		
	Purpose 2			
	Purpose 3			
	Purpose 4			
	Total General Funds Applied	$0.00		
d. Total Available Funds and Materials			$0	
3. NEW FINANCING REQUESTED FOR FACILITIES			$18,228,000	
4. RUS LOAN REQUESTED FOR FACILITIES		100%	$18,228,000	
5. TOTAL SUPPLEMENTAL LOAN REQUESTED		0%		
Name of Supplemental Lender				
6. CAPITAL TERM CERTIFICATE PURCHASES (CFC Loan only		0%		
7. SUPPLEMENTAL LOAN REQUESTED FOR FACILITIES				
8. 100% SUPPLEMENTAL LOANS (SEE RUS Bulletin 20-40,Att. C)*				

** Identify in section A by budget purpose and separate subtotals.*

SECTION C. CERTIFICATION

We, the undersigned, certify that:

financing is available, the system will be capable of adequately and dependably serving the projected load for the loan period as contained in our current RUS approved Power Requirement Study and Construction Work Plan.

is based.

3. The data contained herein and all supporting documents have, to the best of my knowledge, been prepared correctly and in accordance with RUS Bulletin 20-2.

7-18--2002
Date

Jackie S Browning
Signature of Borrower's President & CEO

07/18/2002
Date

L F Martin Jr
Signature of Borrower's Chairman

FARMERS RECC
Corporate Name of Borrower

GFR Initials MM

Attachment to 740c
FARMERS RECC - KY 34 AP8

STATEMENT

Statement certifying that at least 90% of the Loan funds are for facilities with a useful life of 33 years or longer as required by 7 CFR 1710.115.

To facilitate the determination of the final maturity for this RUS Loan, **Jackie Browning** does hereby certify that:

[X] At least 90% of the Loan funds requested as part of this loan application and included on the RUS Form 740c (Cost Estimates and Loan Budget for Electric Borrowers) are for facilities with an anticipated useful life of 33 years or longer.

[ ] Less than 90% of the Loan funds requested as part of this loan application and included on the RUS Form 740c (Cost Estimates and Loan Budget for Electric Borrowers) are for facilities with an anticipated useful life of 33 years or longer. A schedule has been attached to this statement listing the facilities with an anticipated useful life of less than 33 years, the anticipated useful life of those facilities and the associated cost estimates (see attached).

07/18/2002
Date

Title: Jackie S Browning
President & CEO

Certification

EXHIBIT E

FINANCIAL FORECAST

FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION

KY 34
BASE CASE - 1.50 TIER;
Wayne Davis
July 17, 2002

FINANCIAL FORECAST — RUS FORM 325A- RATIOS

	LAST YEAR	FUTURE YEARS									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1. EQUITY RATIO (WITH ADD. REV.) (%)	39.54	40.22	34.34	33.05	32.06	31.32	30.72	30.28	29.97	29.79	29.67
2. DEBT SERVICE COVERAGE (WITH ADD. REV.)	2.56	1.70	1.67	1.64	1.64	1.60	1.58	1.58	1.57	1.56	1.56
3a. TIMES INTEREST EARNED RATIO (WITH ADD. REV.)	2.45	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
3b. OPERATING TIER (including op. margins + G&T & lender CCs paid)		1.49	1.43	1.44	1.45	1.45	1.46	1.46	1.46	1.46	1.46
4. AVERAGE REVENUE PER KWH SOLD (CENTS)	5.65	5.86	6.19	6.35	6.33	6.32	6.39	6.47	6.62	6.74	6.73
5. INCREASE IN AVERAGE REVENUE PER KWH SOLD (%)		3.75	5.55	2.62	-0.38	-0.02	1.10	1.19	2.26	1.87	-0.10
6. TOTAL UTILITY PLANT PER KWH SOLD (CENTS)	10.15	10.64	11.11	11.57	12.01	11.79	11.95	12.12	12.30	12.47	12.66
7. NET GENERAL FUNDS TO TOTAL UTILITY PLANT (%)	1.23	0.13	10.53	11.07	11.86	12.42	12.99	13.44	13.79	14.04	14.33
8. ACCUM. PROV. FOR DEP. & AMORT. TO T.U.P. (%)	27.85	27.41	27.05	26.77	26.56	26.36	26.18	26.01	25.84	25.69	25.55
9. OPERATIONS & MAINTENANCE EXP. PER CONSUMER ($)	121.53	120.88	121.91	123.01	124.17	125.39	126.45	127.57	128.76	130.02	131.31
10. ADMIN. & GEN. EXPENSE PER CONSUMER ($)	66.46	68.53	69.12	69.74	70.40	71.09	71.69	72.33	73.00	73.71	74.45
11. PLANT REVENUE RATIO	5.61	5.79	5.80	5.67	5.58	5.60	5.63	5.66	5.70	5.74	5.78
12. RATE OF RETURN ON RATE BASE (WITH ADD. REV.) (%)		4.35	4.77	5.68	6.38	6.58	6.74	6.88	6.98	7.06	7.13
13. RATE BASE = 104% OF NET UTILITY PLANT		38,944,590	39,254,357	41,529,771	43,769,801	46,077,031	48,453,479	50,901,220	53,422,393	56,019,202	58,693,915
14. INCREASE OVER PRESENT RETAIL RATES REQUIRED (%)		1.38	6.93	9.65	9.16	8.86	9.98	11.21	13.65	15.70	15.52
15. MODIFIED DSC (FOR RUS USE)		1.70	1.67	1.64	1.64	1.60	1.58	1.58	1.57	1.56	1.56
16. MODIFIED TIER (NET OF G&T & OTHER CAP. CREDITS)		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

FINANCIAL FORECAST — RUS FORM 325B - PRO FORMA BALANCE SHEET

	LAST YEAR	FUTURE YEARS									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1. ASSETS AND OTHER DEBITS											
a. TOTAL UTILITY PLANT	46,112,827	48,934,827	51,741,827	54,533,377	57,309,014	60,167,919	63,112,592	66,145,605	69,269,608	72,487,332	75,801,587
b. ACCUM. PROVISION FOR DEPREC. & AMORT.	12,842,183	13,411,183	13,997,253	14,600,905	15,222,667	15,863,081	16,522,706	17,202,124	17,901,922	18,622,714	19,365,130
c. NET UTILITY PLANT	33,270,644	35,523,644	37,744,574	39,932,472	42,086,347	44,304,838	46,589,884	48,943,481	51,367,686	53,864,617	56,436,456
d. NET GENERAL FUNDS	567,946	65,408	5,447,430	6,034,340	6,795,188	7,473,449	8,195,604	8,893,167	9,551,147	10,177,077	10,863,781
e. GENERAL FUNDS EXCLUDABLE ITEMS	845,251	845,251	845,251	845,251	845,251	845,251	845,251	845,251	845,251	845,251	845,251
f. OTHER ASSETS AND DEBITS	8,712,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251	6,212,251
g. TOTAL ASSETS AND OTHER DEBITS	43,396,092	42,646,554	50,249,506	53,024,314	55,939,036	58,835,789	61,842,990	64,894,150	67,976,335	71,099,196	74,357,739
2. LIABILITIES AND OTHER CREDITS											
a. TOTAL MARGINS AND EQUITIES	17,160,523	17,151,822	17,255,472	17,522,490	17,934,062	18,426,110	18,997,470	19,647,661	20,374,971	21,178,188	22,058,425
b. LONG TERM DEBT - RUS											
(1). LONG TERM DEBT - 2% & 5%	0	0	0	0	0	0	0	0	0	0	0
(2). LONG TERM DEBT - 5% & MUNI	12,241,109	11,763,661	11,264,874	10,743,725	10,232,009	9,701,309	9,172,280	8,648,750	8,128,167	7,619,921	7,095,914
(3). LONG TERM DEBT - GUARANTEE	5,053,000	5,000,423	13,218,899	16,478,262	19,695,950	22,848,750	26,042,070	29,190,213	32,289,925	35,337,698	38,430,226
c. LONG TERM DEBT - OTHER	5,363,766	5,152,954	4,932,567	4,702,143	4,499,321	4,281,926	4,053,476	3,829,832	3,605,577	3,385,695	3,195,480
d. OTHER LIABILITIES AND CREDITS	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694	3,577,694
e. TOTAL LIABILITIES AND OTHER CREDITS	43,396,092	42,646,554	50,249,505	53,024,314	55,939,036	58,835,788	61,842,969	64,894,150	67,976,334	71,099,196	74,357,739

FINANCIAL FORECAST — RUS FORM 325C - STATEMENT OF OPERATIONS

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1. ACCRUAL BASIS										
a (1). ADDITIONAL REVENUE REQUIREMENTS FOR TIER/EQUITY	368,194	1,867,087	2,634,051	2,532,082	2,625,954	3,063,438	3,559,408	4,477,404	5,315,663	5,416,982
(2). OPER. REV. & PATRON. CAP. - PRESENT RATES	26,590,951	26,944,906	27,298,861	27,652,816	29,647,817	30,697,636	31,747,454	32,797,274	33,847,092	34,896,911
b. COST OF POWER	18,502,248	19,887,604	20,308,813	19,911,189	21,536,142	22,556,286	23,629,418	25,122,571	26,532,262	27,194,095
c. OPER. REV. LESS COST OF POWER	8,456,897	8,924,389	9,624,099	10,273,709	10,737,629	11,204,788	11,677,443	12,152,107	12,630,492	13,119,798
d. OPERATIONS & MAINTENANCE EXPENSE	2,644,000	2,723,320	2,805,020	2,889,170	2,975,845	3,065,121	3,157,074	3,251,787	3,349,340	3,449,820
e. CONSUMER ACCOUNTS AND SALES EXPENSE	926,000	953,780	982,393	1,011,865	1,042,221	1,073,488	1,105,692	1,138,863	1,173,029	1,208,220
f. ADM. & GEN. & OTHER DEDUCTIONS EXPENSE	1,499,000	1,543,970	1,590,289	1,637,998	1,687,138	1,737,752	1,789,884	1,843,581	1,898,888	1,955,855
g. DEPRECIATION AND AMORTIZATION EXPENSE	1,469,000	1,513,070	1,558,462	1,605,216	1,653,372	1,702,974	1,754,063	1,806,685	1,860,885	1,916,712
h. TAX EXPENSE	310,000	319,300	328,879	338,745	348,908	359,375	370,156	381,261	392,699	404,480
i. INTEREST EXPENSE	1,082,598	1,307,299	1,634,037	1,923,143	2,084,096	2,242,719	2,400,382	2,554,621	2,706,434	2,860,474
j. TOTAL COST OF ELECTRIC SERVICE	26,432,846	28,248,344	29,207,894	29,317,327	31,327,722	32,737,714	34,206,671	36,099,367	37,913,536	38,989,656
k. PATRONAGE CAPITAL & OPERATING MARGINS	526,299	563,650	725,019	867,572	946,048	1,023,360	1,100,191	1,175,310	1,249,217	1,32[illegible]
l. NON-OPERATING MARGINS	15,000	90,000	92,000	94,000	96,000	98,000	100,000	102,000	104,000	106,000
m. G&T AND OTHER CAPITAL CREDITS (CFC CTC's)	0	0	0	0	0	0	0	0	0	0
n. TOTAL ACCRUAL MARGINS	541,299	653,650	817,019	961,572	1,042,048	1,121,360	1,200,191	1,277,310	1,353,217	1,430,237
2. CASH BASIS										
a. CASH FROM OPERATIONS BEFORE DEBT SERVICE	3,092,897	3,474,019	4,009,518	4,489,931	4,779,517	5,067,052	5,354,636	5,638,615	5,920,536	6,207,423
b. TOTAL DEBT SERVICE	1,823,435	2,081,997	2,444,247	2,737,993	2,996,392	3,206,878	3,399,413	3,599,746	3,786,790	3,982,168
c. CASH MARGINS AFTER DEBT SERVICE	1,269,462	1,392,022	1,565,271	1,751,938	1,783,125	1,860,175	1,955,223	2,038,869	2,133,746	2,225,255

FINANCIAL FORECAST — RUS FORM 325D - GENERAL FUNDS SUMMARY

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1. SOURCES OF GENERAL FUNDS										
a. NET GENERAL FUNDS BEGINNING OF YEAR	567,946	65,408	5,447,430	6,034,340	6,795,188	7,473,449	8,195,604	8,893,167	9,551,147	10,177,077
b. CASH MARGINS AFTER DEBT SERVICE	1,269,462	1,392,022	1,565,271	1,751,938	1,783,125	1,860,175	1,955,223	2,038,869	2,133,746	2,225,255
c. OTHER PROCEEDS	2,500,000	0	0	0	0	0	0	0	0	
d. SALE OF EXCLUDABLE ITEMS	0	0	0	0	0	0	0	0	0	
e. REIMBURSEMENT FROM PRIORITY LOAN FUNDS	0	4,957,181	0	0	0	0	0	0	0	0
f. REIMBURSEMENT FROM SPECIAL LOANS (NON-PRIORITY)	0	0	0	0	0	0	0	0	0	0
2. TOTAL GENERAL FUNDS AVAILABLE	4,337,408	6,414,611	7,012,700	7,786,278	8,578,313	9,333,624	10,150,827	10,932,036	11,684,893	12,402,332
3. PROPOSED USE OF GENERAL FUNDS										
a. PURCHASE OF EXCLUDABLE ITEMS	0	0	0	0	0	0	0	0	0	0
b. CAPITAL CREDIT RETIREMENTS	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000	550,000
c. GENERAL FUNDS INVESTED IN PLANT	3,722,000	417,181	428,360	441,091	554,864	588,020	707,660	830,890	957,816	988,551
d. OTHER USES OF GENERAL FUNDS	0	0	0	0	0	0	0	0	0	0
4. TOTAL PROPOSED USES OF GENERAL FUNDS	4,272,000	967,181	978,360	991,091	1,104,864	1,138,020	1,257,660	1,380,890	1,507,816	1,538,551
5. NET GENERAL FUNDS - END OF YEAR	65,408	5,447,430	6,034,340	6,795,188	7,473,449	8,195,604	8,893,167	9,551,147	10,177,077	10,863,781

2002-2006

FARMERS RURAL ELECTRIC

COOPERATIVE CORPORATION

WORK PLAN

Kentucky 34 Barren
P.O. Box 1298
Glasgow, Kentucky 42142-1298

2003-00298

2002 - 2006 CONSTRUCTION WORK PLAN

FOR

FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION

KENTUCKY - 34 - BARREN
GLASGOW, KENTUCKY

PREPARED BY:

FARMERS RURAL ELECTRIC COOPERATIVE CORPORATION

GLASGOW, KENTUCKY

JUNE, 2002

I hereby certify that this 2002 - 2006 Construction Work Plan was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Kentucky.

7/17/02 **By:** Chad Bishop
(Date) **(Engineer, P.E.)**

Registration No. 22343

FRECC CONSTRUCTION WORK PLAN REPORT

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PURPOSE OF REPORT

This report documents the February 2002 engineering analysis of, and summarizes the proposed construction for, Farmers Rural Electric Cooperative Corporation's (FRECC) electric distribution system for the four-year planning period of 07/02 thru 06/06.

The report also provides engineering support, in the form of descriptions, costs and justification of required new facilities, for a loan application to RUS to finance the proposed construction program.

RESULTS OF PROPOSED CONSTRUCTION

Upon completion of construction of the facilities proposed herein, the system will provide adequate and dependable service to 22,800 residential/farm consumers using an average of 1210 kWH per consumer per month, and 1349 large power and special loads which are provided for on an individual basis. It is estimated there will be 1900 idle services.

GENERAL BASIS OF STUDY

The 2006 projected number of consumers and total peak system load were taken directly from the cooperative's 2000 Power Requirements Study (PRS) as approved by RUS.

The cooperative's 1996 Long-Range Plan (LRP) load projections and recommendations were followed for this four-year planning period. All of the construction proposed herein is consistent with the LRP unless otherwise noted and explained.

The cooperative's 2002 operations and maintenance review, (Review Rating Summary; RUS Form 300), was used to determine construction required to replace physically deteriorated equipment and material, upgrade portions of the system to conform with code or safety requirements, and/or improve reliability or quality of service.

New distribution, transmission, and power supply construction requirements were considered simultaneously as a "one system" approach for the orderly and economical development of the total system. All of the proposed construction and recommendations herein, relative to power supply and delivery, were discussed with the cooperative's power supplier, East Kentucky Power Cooperative (EKPC).

A complete list of the lines and equipment, and their estimated cost, (all based on recent historical data), required to serve 2,840 new members is developed in Section III-A. A similar list and cost of necessary service upgrades to existing members is in Section III-B.

An analysis, using as a basis RUS guidelines and the design criteria herein, of thermal loading, voltages, physical conditions and reliability was performed on all of the substations, distribution lines and major equipment of the existing system. Milsoft software was used to analyze the distribution circuits during the 2000 / 2001 winter substation peak loading periods. A sample printout is in Section A of the Appendix. The exhibits in Section II form the rest of the basis of this analysis.

For each deficiency that was determined, alternate solutions were investigated and economically evaluated, so that the most cost effective construction, if required, could be proposed. A sample computer analysis used to determine the most economical alternate plans is in Section A of the Appendix.

SERVICE AREA & POWER SUPPLY

Farmers Rural Electric Cooperative Corporation (FRECC), whose headquarters are in Glasgow, Kentucky, provides service in the rural areas of three counties and small portions of six counties in the south central portion of the state as shown on Map IB-1. The 1,120 square mile service area is comprised mostly of rolling, forested hills and has two small lakes. FRECC's service area surrounds Glasgow, (2000 population of 15,000), which has its own electric system. Several of the other most populated areas are served by Kentucky utilities, a private power company.

Most of the economy of this area is based on commercial services for the tourist industry and agriculture. The cooperative serves several oil wells, however oil production in the area is declining. FRECC has and will continue to serve the moderate growth of new commercial, small manufacturing and residential consumers adjacent to Glasgow.

The following data is from FRECC's 12/31/01 REA Form 7:

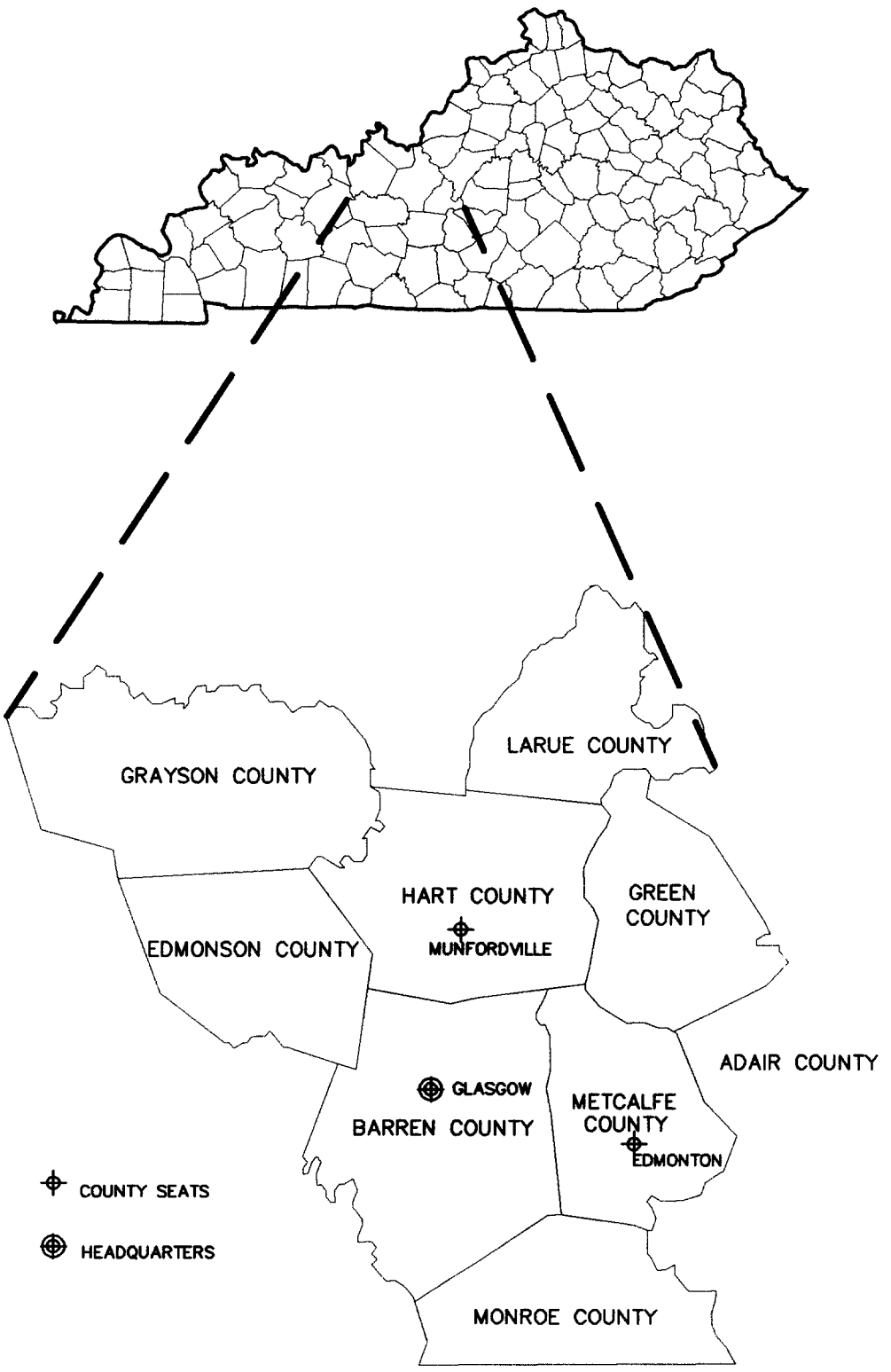
Number of Consumers:	21,620
MWH Purchased:	478,742
MWH Sold:	454,105
Maximum Non-Coincident kW Demand	105,679
Total Utility Plant:	$46,035,763 ($2,129 / member)
Consumers/mile:	6.52

There are 45 primary distribution circuits totaling 3,318 miles of line served from twelve distribution substations. Thirty-one of the circuits are partially energized at 14,400/25,000 Volts, grounded wye, the remainder are at 7,200/12,470 volts, grounded wye. All primary lines built since 1964 have been insulated for 14,400/25,000 Volts. Installed conductor sizes range from #8 copperweld to 795 MCM Aluminum. Almost all new primary construction is overhead with only a small amount of existing plant being underground primary.

East Kentucky Power Cooperative (EKPC) provides all of power and energy needs to Farmers Rural Electric Cooperative Corporation, plus 16 other distribution cooperatives, (see Map IB-2), by virtue of a standard "all requirements" contract. EKPC is a RUS financed G & T cooperative with offices in Winchester, Kentucky.

EKPC constructs, owns, operates and maintains the twelve distribution substations and 69,000 Volt transmission lines which supply FRECC's distribution system. The predominant substation low-side voltage is 14,400/25,000 Volts, grounded wye.

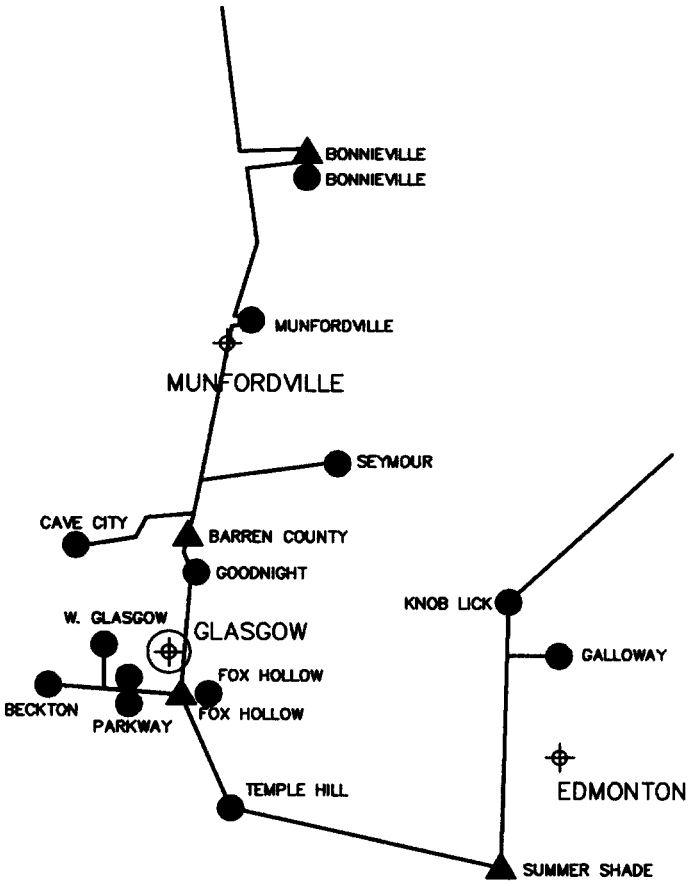
FARMERS RURAL ELECTRIC SERVICE AREA
KENTUCKY 34 BARREN



EAST KENTUCKY POWER COOPERATIVE'S SUBSTATION AND TRANSMISSION NETWORK

FOR

FARMERS RURAL ELECTRIC SERVICE AREA
KENTUCKY 34 BARREN



COUNTY SEATS

HEADQUARTERS

SUBSTATIONS (69 kV)

NEW SUBSTATIONS (69 kV)

SUBSTATIONS (161 kV)

POWER SUPPLY (SUBSTATIONS)

The 02 - 06 CWP does not contain any substation justifications. Fox Hollow substation will be constructed during the work plan period. No substations will become overloaded during the construction work plan period. FRECC will continue to monitor all substation loading with EKPC.

SUMMARY OF PROPOSED 4-YR CONSTRUCTION WITH COSTS

CODE	EXT	ITEM #	DESCRIPTION	MILES	ESTIMATED COST 1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	TOTAL
101			40 - UG NEW CONSUMERS	8.0	50,000	50,000	50,000	50,000	200,000
102			2800 - OH NEW CONSUMERS	163.0	810,000	834,300	859,329	885,109	3,388,738
100			**NEW DISTRIBUTION LINES**	171.0	**860,000**	**884,300**	**909,329**	**935,109**	**3,588,738**
339 *		3-3-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.9	81,700				81,700
342 *		9-1-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.0	86,600				86,600
343 *		2-5-C	3-PH AND 1-PH, CONV 12.47 - 25 KV	14.0		135,000			135,000
345 *		2-5-B	1-PH, CONV 7.2 - 14.4 KV	9.5			79500		79,500
347 *		5-4-G	CONV 1-PH TO 3-PH, #1/0 ACSR TO # 1/0 ACSR	1.3	55,900				55,900
349 *		7-2-D	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	2.8		120,400			120,400
351 *		8-2-B	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.9	259,450				259,450
361		1-2-A	3-PH, RECOND #1/0 ACSR TO #397 ACSR	0.2			4,300		4,300
362		1-2-B	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.2			8,600		8,600
363		1-2-C	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	0.7			30,100		30,100
364		2-3-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	9.8			100,150		100,150
365		2-4-A	CONV 1-PH TO 2-PH, RECOND #4 ACSR TO # 1/0 ACS	1.4			60,200		60,200
366		3-4-A	1-PH, CONV 7.2 - 14.4 KV	2.8				25,400	25,400
367		3-4-B	1-PH, CONV 7.2 - 14.4 KV	0.3				2,650	2,650
368		4-1-A	3-PH AND 1-PH, CONV 12.47 - 25 KV	25.6		263,800			263,800
369		10-2-A	3-PH, RECOND #4 ACSR TO #4/0 ACSR, CONV 12.47 -	5.0				60,250	60,250
370		7-3-A	CONV 1-PH TO 3-PH, RECOND #4 ACSR TO # 1/0 ACS	1.0				43,000	43,000
371		8-2-B	1-PH, CONV 7.2 - 14.4 KV	8.6				82,550	82,550
372		9-1-A	1-PH, CONV 7.2 - 14.4 KV	1.7				16,100	16,100
373		9-1-B	1-PH, CONV 7.2 - 14.4 KV	1.0				9,500	9,500
374		ALL-ALL-A	CONDUCTOR REPLACEMENT	120.0	330,000	330,000	330,000	330000	1,320,000
300			**LINE CONVERSIONS**	235.7	**813,650**	**849,200**	**612,850**	**569,450**	**2,845,150**
601			TRANSFORMERS & METERS		327,710	861,981	874,969	888,388	2,953,048
602			SERVICE UPGRADES		55,080	56,732	58,434	60,187	230,433
603			SECTIONALIZING EQUIPMENT		23,350	23,350	23,350	23,350	93,400
604			REGULATOR STATIONS		72,350	72,350	72,350	72,350	289,400
605			CAPACITORS		5,000	5,000	5,000	5,000	20,000
606			POLE REPLACEMENTS (2468 POLES TOTAL)		492,941	502,132	505,940	521,365	2,022,378
609			AUTOTRANSFORMERS		20,550	20,550	20,550	20,550	82,200
600			**DISTRIBUTION EQUIPMENT**		**996,981**	**1,542,095**	**1,560,593**	**1,591,190**	**5,690,859**
701			SERCURITY LIGHTS		98,820	101,655	104,895	108,135	413,505
702			AMR COMPUTER AND COMMUNICATION HARDWARE		0	244,043	244,043	244,043	732,128
700			**OTHER DISTRIBUTION EQUIPMENT**		**98,820**	**345,698**	**348,938**	**352,178**	**1,145,633**
			Total						**13,270,380**

* CARRYOVER

SUBSTATION TRANSFORMER LOAD DATA

HISTORICAL AND PROJECTED WINTER PEAK KW DEMANDS

	SUBSTATION	TRANSFORMER #	TRANSFORMER KVA	TRANSFORMER CLASS	ACTUAL 12/19/2000	PROPOSED SYSTEM 06	MAX LOAD % RATING
1.	GOODNIGHT	3	4,667	F/A	10,653	12,091	86%
* 2.	MUNFORDVILLE	1	14,400	F/A	15,909	17,873	124%
* 3.	TEMPLE HILL	1	14,400	F/A	14,690	17,494	121%
4.	KNOB LICK	1	11,200	O/A	9,348	11,115	99%
* 5.	BECKTON	1	14,400	F/A	14,204	17,030	118%
6.	CAVE CITY	3	4,667	F/A	8,856	11,752	84%
7.	PARKWAY I	1	14,400	F/A	17,504	12,704	88%
***	PARKWAY II	1	14,400	F/A		9,520	66%
8.	GALLOWAY	1	14,400	F/A	7,505	12,518	87%
9.	BONNIEVILLE	1	5,600	O/A	3,663	4,694	84%
10.	WEST GLASGOW	1	11,200	O/A	5,146	8,528	76%
11.	SEYMOUR	1	11,200	O/A	2,863	6,568	59%
** 12.	FOX HOLLOW	1	11,200	O/A		3,053	27%
	TOTALS:		**153,601**		**110,341**	**144,940**	

* Exceeds base rating, but falls within design criteria of 130% winter loading.

** Under construction. Scheduled for completion during the fall of 2002. This substation will relieve loading from Temple Hill and Parkway.

*** Additional transformer 3 phase transformer installed to serve Large Power load.

F/A - Forced Air
O/A - Open Air

DESIGN CRITERIA

Each of the following design criteria items was reviewed by the RUS General Field Representative on August 17, 1993 and his provisional concurrence was attained.

Construction proposed herein is required to meet the following minimum standards of adequacy for voltages, thermal loading, safety and reliability on the system.

1. Voltage levels on primary distribution lines are to fall between 118 and 126 volts on a 120 volt base.

2. The following equipment is not to be thermally loaded by more than the percentage shown of its nameplate rating (winter loading):

a. Power Transformers	130% Winter ; 100% Summer
b. Regulators	130% Winter ; 100% Summer
c. Auto-Transformers	130% Winter ; 100% Summer
d. Reclosers	100% Winter ; 100% Summer
e. Line Fuses	80% Winter ; 80% Summer

3. Primary conductors are not to be loaded over 75% of their thermal rating. A case by case limit is used for major tie lines between substations to allow for different backfeed situations.

4. Poles and/or crossarms are to be replaced if found to be physically deteriorated by visual inspection and/or tests.

5. Conductors (and associated poles and hardware as required) will be considered for replacement if found to be in poor condition, having excessive sag in need of being changed out on a systematic basis.

6. Primary distribution lines are to be rebuilt and/or relocated if they are found to be unsafe or fail to meet the applicable National Electrical Safety Code clearances.

7. New lines and line conversions to be built according to the standard primary voltage levels as determined after review of the Long Range Plan, present loading and future load growth projection.

DESIGN CRITERIA (CONT.)

8. New primary conductor sizes to be determined on a case by case basis using the Economic Conductor Sizing Computer Program and presently valid constants and variables. The final proposed conductor may be modified to conform with the cooperative's standard sizes and recommendations of the Long-Range Plan.

9. All new primary construction to be overhead except where underground is required to comply with governmental or environmental regulations, local restrictions or favorable economics.

10. All new distribution lines to be designed and built according to RUS standard construction specifications and guidelines.

11. The fault current available at regulator or auto-transformer location should not exceed limits as set out by IEEE C37.91-1985 and in no case should it exceed 25 times normal base current at the location in question.

12. The fault current available at oil circuit recloser locations should not exceed the nameplate rating.

13. System improvements to correct voltage drop and to improve phase balance will be made on single and two-phase lines with loads exceeding 50 amps (based on Operating and Engineering practices).

14. Power factor correction is to be made when the substation power factor decreases below 97% lagging at peak load or 95% leading at minimum load. Power factor correction capacitors are to be located for maximum loss reduction with consideration given for voltage improvement.

THE PRECEEDING CRITERIA IS USED FOR DESIGN PURPOSES ONLY. IT IS NOT MEANT TO BE INCLUSIVE OF ALL CRITERIA THAT CAN OR SHOULD BE USED.

DISTRIBUTION LINE AND VOLTAGE CONVERSION COSTS

2001 COST (ESTIMATED) $ / mile		
	NEW CONSTRUCTION (OVERHEAD)	
$ 21,000	1 - PHASE ;	# 2 ACSR
23,000	1 - PHASE ;	#1/0 ACSR
37,000	2 - PHASE ;	# 2 ACSR
41,000	2 - PHASE ;	#1/0 ACSR
39,000	3 - PHASE ;	# 2 ACSR
44,000	3 - PHASE ;	#1/0 ACSR
52,000	3 - PHASE ;	#4/0 ACSR
62,000	3 - PHASE ;	#397ACSR
	RECONDUCTORING (OVERHEAD)	
$ 10,000	1 - PHASE ;	# 2 ACSR *
12,000	1 - PHASE ;	#1/0 ACSR *
18,000	3 - PHASE ;	#4/0 ACSR *
	1-PHASE TO 3-PHASE LINE CONVERSION (OVERHEAD)	
$ 36,000	WITH # 2 ACSR *	
43,000	WITH #1/0 ACSR *	
54,000	WITH #4/0 ACSR *	
64,000	WITH #397ACSR *	

VOLTAGE CONVERSION (12 KV TO 25 KV OVERHEAD)

COSTS WILL BE ON A JOB-BY-JOB BASIS BECAUSE EACH JOB WILL HAVE A PORTION ALREADY REINSULATED. (APPROXIMATELY $8,000 FOR SINGLE PHASE AND $10,500 FOR THREE PHASE PER MILE EXCLUDING EQUIPMENT)

NOTES:

* A voltage conversion adder will be included in each reconductoring or line conversion job cost that includes a voltage conversion.

\- Above costs include engineering, right-of-way clearing, and overheads.

STATUS OF PREVIOUS (1996-2000) CWP ITEMS

CODE	EXT	ITEM #	DESCRIPTION	MILES	ESTIMATED COST ORIGIONAL	ESTIMATED COST PRESENT	%	STATUS
101			40 - UG NEW CONSUMERS	3.0	$126,448	$215,252		
102			2960 - OH NEW CONSUMERS	172.0	$3,479,431	$4,763,147		
100			**NEW DISTRIBUTION LINES**	**175.0**	**$3,605,879**	**$4,978,399**	138%	
333 *		1-2-B	3-PHASE, OH, # 1/0 ACSR	0.1	$5,450	$5,899	108%	Complete
336 *		2-6-A	1-PHASE, OH, # 2 ACSR, 12.47-25 KV	4.3	$72,850	$65,802	90%	Complete
337 *		2-6-B	1-PHASE, OH, # 2 ACSR, 12.47-25 KV	8.0	$152,900	$142,133	93%	Complete
338 *		3-3-A	3-PHASE, OH, 12.47 - 25 KV	3.2	$31,600	$41,080	130%	Complete
339 *		3-3-B	3-PHASE, OH, # 1/0 ACSR	2.1	$79,800			Carryover
340 *		3-4-A	3-PHASE, OH, 12.47 - 25 KV	1.9	$18,600	$18,600	100%	Complete
342 *		9-1-A	3-PHASE, OH, # 1/0 ACSR	2.0	$76,000			Carryover
343		2-5-C	3-PHASE, OH, 12.47 - 25 KV	6.1	$53,050			Carryover
344		2-5-D	3-PHASE, OH, 12.47 - 25 KV	11.9	$115,500	$129,258	112%	Complete
345		2-5-E	1-PHASE, OH, 12.47 - 25 KV	3.4	$27,200	$1,891	7%	Carryover
346		3-1-B	3-PHASE, OH, 12.47 - 25 KV	4.3	$41,400	$20,332	49%	Complete
347		5-4-G	3-PHASE, OH, # 1/0 ACSR	1.9	$72,200	$56,539	78%	Complete
348		7-2-C	3-PHASE, OH, # 397 ACSR	1.2	$156,400	$144,164	92%	Complete
349		7-2-D	3-PHASE, OH, # 1/0 ACSR	0.4	$72,200			Carryover
350		7-2-E	3-PHASE, OH, # 1/0 ACSR	1.9	$15,200			Cancel
351		8-2-B	3-PHASE, OH, 12.47 - 25 KV	4.0	$63,600			Carryover
352		9-3-A	3-PHASE, OH, # 4/0 ACSR, 12.47-25 KV	9.2	$154,825	$169,650	110%	Complete
353		9-3-B	1-PHASE, OH, 12.47 - 25 KV	1.9	$15,200			Cancel
354		10-3-A	3-PHASE, OH, # 1/0 ACSR	1.6	$60,800			Cancel
355		2-5-A	3-PHASE, OH, # 1/0 ACSR	4.9	$186,200	$47,757	26%	Cancel
356		4-2-D	1-PHASE, OH, 12.47 - 25 KV	3.8	$38,000			Cancel
357		3-4-C	1-PHASE, OH, 12.47 - 25 KV	6.2	$62,000			Cancel
358			Omitted					
359			Amendent #99-1		$150,000	$80,286	54%	Complete
360			Amendent #99-2		$75,000	$97,500	130%	Complete
300			**LINE CONVERSIONS**	**84.3**	**$1,482,975**	**$1,020,891**	69%	
601			TRANSFORMERS & METERS (AND MISC SPECIAL EQ)		$1,970,054	$2,765,350	140%	
602			SERVICE UPGRADES		$121,074	$263,699	218%	
603			SECTIONALIZING EQUIPMENT		$50,000	$128,420	257%	
604	.1	2-3-A	3-PHASE REGULATOR BANK		$21,000			
604	.2	5-3-C	3-PHASE REGULATOR BANK		$21,000			
604	.3	5-4-H	3-PHASE REGULATOR BANK		$21,000			
604	.4	8-2-C	3-PHASE REGULATOR BANK		$21,000			
604	.5	8-2-D	1-PHASE REGULATOR BANK		$4,000			
			REGULATORS			$81,373	92%	
605			CAPACITORS		$20,000	$7,348	37%	
606	.0		POLE REPLACEMENTS (1800 POLES TOT.		$891,000			
606	.1		COPPERWELD REPLACEMENT	101.6	$934,720			Complete
606	.2*	5-3-A	COPPERWELD REPLACEMENT	1.7	$15,640			Complete
606	.3*	5-3-B	COPPERWELD REPLACEMENT	1.5	$13,800			Complete
606	.4*	5-4-A	COPPERWELD REPLACEMENT	2.4	$22,080			Complete
606	.5*	5-4-B	COPPERWELD REPLACEMENT	2.5	$23,000			Complete
606	.6*	5-4-C	COPPERWELD REPLACEMENT	1.7	$15,640			Complete
606	.7*	4-4-B	COPPERWELD REPLACEMENT	3.8	$34,960			Complete
606	.8*	3-2-A	COPPERWELD REPLACEMENT	0.8	$6,900			Complete
606	.9*	1-1-A	COPPERWELD REPLACEMENT	4.2	$38,640			Complete
606	.10*	4-4-A	COPPERWELD REPLACEMENT	4.4	$49,300			Complete
606	.11	3-4-C	COPPERWELD REPLACEMENT	11.8	$108,560			Complete
606			REPLACEMENT	136.4	$2,154,240	$2,516,200	117%	
608			CLEARANCE POLES	80	$54,000	$60,450	112%	
609			AUTOTRANSFORMERS		$135,500	$240,588	178%	
600			**DISTRIBUTION EQUIPMENT**		**$4,592,868**	**6,063,428**	132%	
701			SERCURITY LIGHTS		$309,000	$470,350	152%	
702			REINBURSEMENTS		$1,568,086	$1,542,264	98%	
700			**OTHER DISTRIBUTION EQUIPMENT**		**$1,877,086**	**$1,542,264**	82%	
1600			**MISCELLANEOUS PROJECTS**			**$1,169,914**		
					$11,558,808	**$14,774,896**	128%	

* Carryover Items

ANALYSIS OF 1996 LONG-RANGE PLAN

Farmers Rural Electric Cooperative's 1996 Long-Range Plan (LRP) still remains current and adequate. The LRP was used as a guide in the 02 – 06 CWP preparation.

The study was based on the 1993-1994 winter peak loads of 83,800 KW and an average annual load growth rate of 3.0%. Three future load levels were studied: 2000 when the loads would be increased by approximately 31% (110,000 KW), 2005 when the loads would be increased by approximately 48% (124,000 KW) and 2015 when the loads would increase by approximately 80 % (151,000 KW) more than the base year.

The LRP recommends that the distribution system continue to be built as 14.4/24.9 KV but operated at the most economic level (7.2/12.47 KV or 14.4/24.9 KV) depending on the loading. Alternate plans which were developed but found not to be the most economical were: (1) conversion of the entire system to 14.4/24.9 KV and (2) building and operating new plant as 7.2/12.47 KV.

The plan also reflects a currently approved distribution substation at Fox Hollow Switching Station, which is to be constructed in the fall of 2002. The upgrade of Goodnight is also being monitored due to potential load resulting from the Glasgow Outer Loop.

ANALYSIS OF 2002 OPERATIONS & MAINTENANCE SURVEY

In May of 2002, an Operation and Maintenance Survey (O & M Survey) of the FRECC distribution system was conducted. Line and pole inspection records, voltage and current test records, special equipment records, outage records comprised the basis for the system analysis and rating. The completed O & M Survey was reviewed by Mike Norman, RUS General Field Representative on May 29, 2002.

Transmission lines and distribution substations are owned and maintained by East Kentucky Power Cooperative (EKPC) and have been excluded from the rating process.

In general, the overhead and underground distribution facilities were found to be in satisfactory condition. All the operations and maintenance programs and engineering programs were found to be satisfactory

One-half the system is inspected every year utilizing a ground patrol inspection (2 year cycle). Beginning in 1996, approximately 7700 poles were ground line inspected on a yearly basis (7 year cycle). It was found that approximately 8 percent of the poles were physically deteriorated and required replacement.

An "Aged Conductor Survey" was performed during a previous CWP, where approximately 400 miles of copperweld conductor was noted. The age of this conductor is in excess of 50 years and is in poor condition. A ten year replacement schedule was then started to replace this conductor. Approximately two years remain until the copperweld change-out is completed. At the conclusion of the copperweld change-out, other aged conductors will be evaluated.

FRECC has a program to clear its' overhead distribution line rights-of-way on a 4 year cycle. This requires the clearing of approximately 675 miles each year by in-house and contract tree trimming crews. This program has doubled in the past three years to resolve work backlogs.

Contract labor was utilized in the last 4-year CWP to assist FRECC's in-house construction crews. This additional assistance will be required to complete the proposed projects as submitted in the 02-06 CWP.

SECTIONALIZING STUDIES

Each year the Engineering Department analyzes the overcurrent coordination of all new or significantly changed circuits due to CWP projects or other major construction.

A list is made of OCRs, fuses, and other devices required to adequately protect the circuits and is continually being investigated. This list of protection equipment, additions and changes, and it's estimated installed cost, required for the next planning period is included in Section III-E of this CWP report.

In addition to the above new protection requirements, annually, one-sixth of the systems OCR's are removed, inspected, maintained (cleaned and oil changed), tested, and re-installed.

Copies of the data, calculations, and final results of the above circuit overcurrent coordination studies are filed in FRECC's Engineering Department. Also retained are FRECC's OCR maintenance and test reports.

SEASONAL PEAK LOAD CURRENT MEASUREMENTS

#	SUBSTATION NAME	CKT NO.	2/2000 A ph	B ph	C ph	% UNBAL
1.	GOODNIGHT		**612**	**474**	**464**	**18%**
		1	104	78	102	18%
		2	360	270	285	18%
		3	40	51	30	26%
		4	108	75	47	41%
		5	1	1	1	0%
2.	MUNFORDVILLE		**470**	**362**	**401**	**14%**
		1 (14.4)	105	90	108	11%
		2 (14.4)	42	21	63	50%
		3 (14.4)	48	34	49	22%
		4 (14.4)	1	1	1	0%
		5 (14.4)	105	109	94	8%
		6 (14.4)	162	98	79	43%
		7 (14.4)	7	9	7	17%
3.	TEMPLE HILL		**296**	**229**	**252**	**14%**
		1 (14.4)	100	71	68	26%
		2 (14.4)	5	3	3	36%
		3 (14.4)	121	88	91	21%
		4 (14.4)	40	37	62	34%
		5 (14.4)	30	30	28	5%
4.	KNOB LICK		**387**	**357**	**332**	**8%**
		1 (14.4)	104	108	92	9%
		2 (14.4)	70	79	82	9%
		3 (14.4)	95	54	46	46%
		4 (14.4)	118	116	112	3%
5.	BECKTON		**411**	**322**	**366**	**12%**
		1 (14.4)	11	14	35	75%
		2 (14.4)	184	134	147	19%
		3 (14.4)	30	48	46	27%
		4 (14.4)	186	126	138	24%
6.	CAVE CITY		**253**	**355**	**312**	**18%**
		1	65	77	67	11%
		2	76	82	76	5%
		3	111	195	168	30%
		4	1	1	1	0%
7.	PARKWAY I		**700**	**560**	**647**	**12%**
		1	96	100	92	4%
		2	147	108	123	17%
		3	306	225	291	18%
		4	151	127	141	9%
	PARKWAY II		**287**	**293**	**292**	**1%**
		1	287	293	292	1%

SEASONAL PEAK LOAD CURRENT MEASUREMENTS

#	SUBSTATION NAME	CKT NO.	2/2000 A ph	B ph	C ph	% UNBAL
8.	GALLOWAY		**162**	**217**	**220**	**19%**
		1 (14.4)	105	132	135	15%
		2 (14.4)	55	83	84	26%
		3 (14.4)	2	2	1	40%
9.	BONNIEVILLE		**102**	**106**	**122**	**11%**
		1 (14.4)	40	34	62	37%
		2 (14.4)	62	72	60	11%
10.	WEST GLASGOW		**137**	**127**	**128**	**5%**
		1 (14.4)	41	26	31	26%
		2 (14.4)	96	101	97	3%
11.	SEYMOUR		**81**	**93**	**48**	**35%**
		2 (14.4)	7	40	16	90%
		3 (14.4)	12	17	7	42%
		4 (14.4)	62	36	25	51%

1. Unbalance is the percent difference between the current of the maximum or minimum phase and the average current of all three phases.

SUMMARY OF SERVICE INTERRUPTIONS

NUMBER

	POWER SUPPLY	SCHEDULED	MAJOR STORM	WEATHER	EQUIPMENT	ANIMAL	ACT OF MAN	R/W	OTHER	TOTAL
1997	3	82	65	120	204	43	10	63	165	755
1998	4	56	64	231	222	43	1	78	201	900
1999	6	43	-	131	240	94	11	44	142	711
2000	3	34	-	285	213	66	23	66	235	925
2001	-	35	-	273	152	62	17	76	215	830
TOTAL:	16	250	129	1,040	1,031	308	62	327	958	4,121
5 YR AVG:	3	50	26	208	206	62	12	65	192	824

HOURS

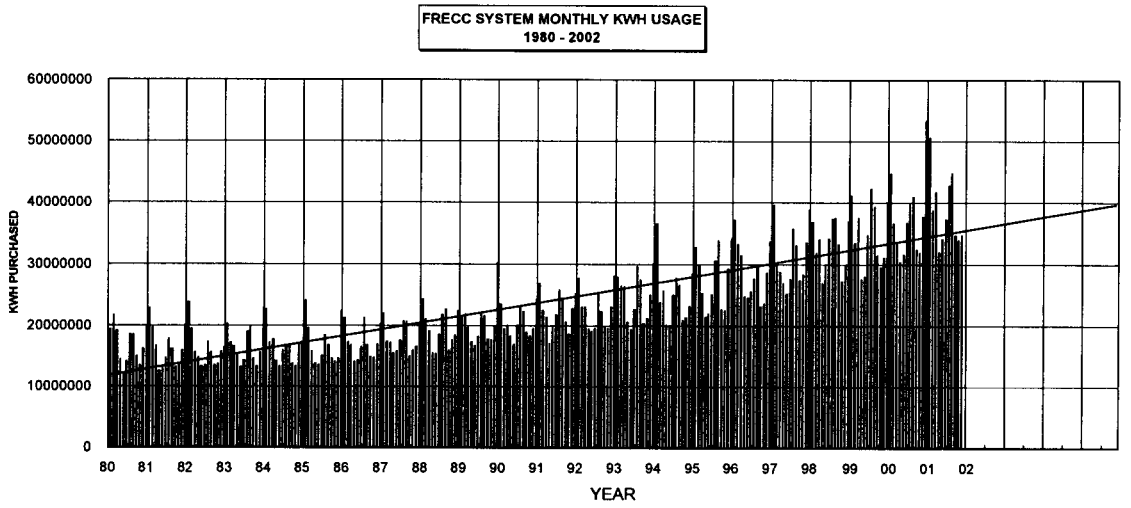
1997	81,336	4,371	41,461	4,231	12,909	577	3,304	6,364	5,206	159,759
1998	58,407	3,711	28,366	18,252	20,032	619	574	11,501	3,274	144,736
1999	12,923	2,530	-	20,229	29,506	2,501	1,389	2,601	6,337	78,016
2000	14,141	1,780	-	31,282	17,847	8,924	758	8,304	7,185	90,221
2001	-	1,834	-	17,541	22,337	1,169	1,938	11,985	3,920	60,724
TOTAL:	166,807	14,226	69,827	91,535	102,631	13,790	7,963	40,755	25,922	533,456
5 YR AVG:	33,361	2,845	13,965	18,307	20,526	2,758	1,593	8,151	5,184	106,691

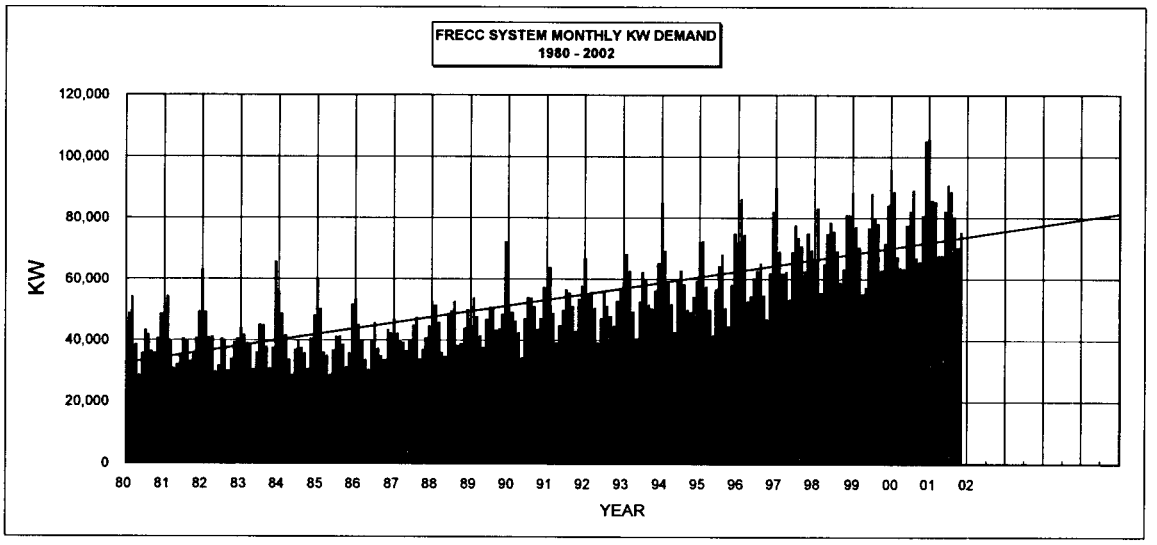
MEMBERS EFFECTED

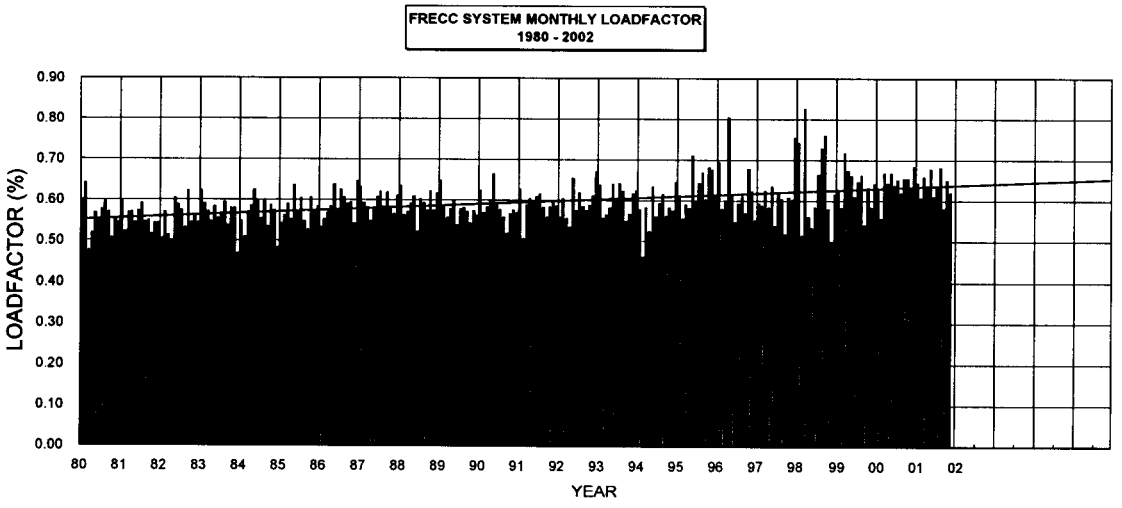
1997	28,228	7,814	7,497	3,873	8,308	481	859	2,325	4,969	64,354
1998	29,299	8,953	4,607	7,313	9,135	488	189	3,810	3,350	67,144
1999	15,661	3,844	-	6,865	11,147	2,197	601	1,219	4,921	46,455
2000	13,186	2,010	-	13,900	9,265	3,852	434	2,393	5,034	50,074
2001	-	3,428	-	6,631	9,296	1,674	1,094	6,076	4,972	33,171
TOTAL:	86,374	26,049	12,104	38,582	47,151	8,692	3,177	15,823	23,246	261,198
5 YR AVG:	17,275	5,210	2,421	7,716	9,430	1,738	635	3,165	4,649	52,240

AVERAGE HOURS OUTAGE PER MEMBER

1997	4.207	0.226	2.145	0.219	0.668	0.030	0.171	0.329	0.269	8.264
1998	2.936	0.187	1.426	0.917	1.007	0.031	0.029	0.578	0.165	7.275
1999	0.632	0.124	-	0.989	1.442	0.122	0.068	0.127	0.310	3.814
2000	0.672	0.085	-	1.486	0.848	0.424	0.036	0.395	0.341	4.287
2001	-	0.085	-	0.811	1.033	0.054	0.090	0.554	0.181	2.809
TOTAL:	8.446	0.706	3.570	4.423	4.998	0.661	0.393	1.983	1.266	26.448
5 YR AVG:	1.689	0.141	0.714	0.885	1.000	0.132	0.079	0.397	0.253	5.290


FRECC SYSTEM MONTHLY KWH USAGE
1980 - 2002
KWH PURCHASED
60000000
50000000
40000000
30000000
20000000
10000000
0
80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02
YEAR


FRECC SYSTEM MONTHLY KW DEMAND
1980 - 2002
KW
120,000
100,000
80,000
60,000
40,000
20,000
0
80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02
YEAR


FRECC SYSTEM MONTHLY LOADFACTOR
1980 - 2002
LOADFACTOR (%)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02
YEAR

CONSTRUCTION REQUIRED TO SERVE NEW MEMBERS

NEW MEMBERS - SYSTEM WIDE	24 MONTH HISTORY 3/00-2/01	24 MONTH HISTORY 3/01-2/02	ESTIMATED 48-MONTH WORK PLAN PERIOD 7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
NUMBER OF NEW SERVICES							
Underground	5	10	10	10	10	10	40
Overhead	724	681	700	700	700	700	2,800
TOTAL NEW MEMBERS	729	691	710	710	710	710	2,840
LINEAL FEET OF NEW LINE							
Underground (UG)							
Primary	4,670	10,621	8,000	8,000	8,000	8,000	32,000 ft
Secondary	145	1,720	1,500	1,500	1,500	1,500	6,000 ft
Service Drop	568	890	1,000	1,000	1,000	1,000	4,000 ft
	5,383	13,231	10,500	10,500	10,500	10,500	42,000 ft
							8.0 mi
AVERAGE (UG)	1077	1323					
Overhead (OH)							
Primary	133,345	110,695	130,000	130,000	130,000	130,000	520,000 ft
Secondary	35,205	35,741	35,000	35,000	35,000	35,000	140,000 ft
Service Drop	56,922	46,817	50,000	50,000	50,000	50,000	200,000 ft
	225,472	193,253	215,000	215,000	215,000	215,000	860,000 ft
							162.9 mi
AVERAGE (OH)	311	284					
TOTAL LENGTH IN FEET	230,855	206,484	225,500	225,500	225,500	225,500	902,000 ft
							170.8 mi
COST OF NEW SERVICES							
Underground	$40,096	$61,550	$50,000	$50,000	$50,000	$50,000	$200,000
AVERAGE (UG)	$8,019	$6,155	$5,000	$5,000	$5,000	$5,000	$20,000
Overhead	$850,861	$767,120	$810,000 *	$834,300 *	$859,329 *	$885,109 *	$3,388,738
AVERAGE (OH)	$1,175	$1,126	$1,157	$1,192	$1,228	$1,264	$4,841
TOTAL COST OF NEW LINE	**$890,957**	**$828,670**	**$860,000**	**$884,300**	**$909,329**	**$935,109**	**$3,588,738**
COST OF NEW TRANSFORMERS							
Number of UG Transformers	8	10	10	10	10	10	40
Number of OH Transformers	389	670	530	530	530	530	2,120
	397	680	540	540	540	540	2,160
Avg Inst UG Cost	$932	$945	$940	$964	$988	$1,012	
Avg Inst OH Cost	$511	$514	$519	$537	$556	$575	
Cost of UG Transformers	$7,456	$9,453	9,400 **	9,635 **	9,876 **	10,123 **	$39,034
Cost of OH Transformers	$198,645	$344,196	275,000	284,625	294,587	304,897	$1,159,109
TOTAL COST OF NEW TRANS	**$206,101**	**$353,649**	**$284,400**	**$294,260**	**$304,463**	**$315,020**	**$1,198,143**
COST OF NEW METERS							
Number of Meters	709	536	710	710	710	710	2,840
Average Installed Cost of Meters	$60	$62	$61 **	$63 **	$64 **	$66 **	
TOTAL COST OF NEW METERS	**$42,540**	**$33,286**	**$43,310**	**$44,393**	**$45,503**	**$46,640**	**$179,845**
TOTAL COST OF NEW SERVICES	**$1,139,598**	**$1,215,605**	**$1,187,710**	**$1,222,953**	**$1,259,294**	**$1,296,769**	**$4,966,726**

* Inflated by 3.0%
** Inflated by 2.5%

CHANGES REQUIRED FOR AMR IMPLEMENTATION

	ESTIMATED 48-MONTH WORK PLAN PERIOD				
	7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
Number of AMR modules installed		6,210	6,210	6,210	18,630
Per meter labor cost of Upgrade	$9	$9	$9	$10	
Total Cost Required for AMR meter upgrade		$55,840	$57,515	$59,240	$172,595
Meter Module Cost		$467,489	$467,489	$467,489	$1,402,466
Per module cost		$75	$75	$75	$75
Total Cost of AMR code 601		**$523,328**	**$525,004**	**$526,729**	**$1,575,061**

SERVICE CHANGE REQUIRED FOR EXISTING MEMBERS

	24 MONTH HISTORY		ESTIMATED 48-MONTH WORK PLAN PERIOD				
NEW MEMBERS - SYSTEM WIDE	3/00-2/01	3/01-2/02	7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
SERVICE DROPS							
Number of Service Upgrades	107	131	120	120	120	120	480
Avg Cost of Service Upgrades	$449	$469	$459	$473	$487	$502	$1,920
TOTAL COST OF UPGRADES CODE 602	**$48,043**	**$61,439**	**$55,080**	**$112,572**	**$115,949**	**$119,428**	**$403,029**

SUMMARY

CATEGORY DESCRIPTION	CFR CODE	ESTIMATED 48-MONTH WORK PLAN PERIOD				
		7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
UG Lines - New Consumers		$50,000	$50,000	$50,000	$50,000	$200,000
OH Lines - New Consumers		$810,000	$834,300	$859,329	$885,109	$3,388,738
NEW DISTRIBUTION LINES	100	**$860,000**	**$884,300**	**$909,329**	**$935,109**	**$3,588,738**
UG Transformers - New Cons.		$9,400	$9,635	$9,876	$10,123	$39,034
OH Transformers - New Cons.		$275,000	$284,625	$294,587	$304,897	$1,159,109
Meters - New Cons.		$43,310	$44,393	$45,503	$46,640	$179,845
Meters Equip. - AMR		$0	$523,328	$525,004	$526,728	$1,575,060
TRANSFORMER & METERS	601	**$327,710**	**$861,981**	**$874,969**	**$888,388**	**$2,953,048**
SERVICE CHANGES	602	**$55,080**	**$56,732**	**$58,434**	**$60,187**	**$230,433**

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 339

CWP ITEM NUMBER: 3_3_A
ESTIMATED COST: $81,700

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 1.9 miles of single phase #4 ACSR to three phase #1/0 ACSR in line section 0212401 and 0212001. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections fed by 02-52-R01 fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 342

CWP ITEM NUMBER: 11_4_A
ESTIMATED COST: $86,600

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 2.0 miles of single phase 7.2 kV to three phase 12.47 kV. Convert line from end of three phase to the end of 3820701. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in sections 3821001 and 3821001 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Voltage conversion was not cost justified due to amount of voltage conversion required.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 343

CWP ITEM NUMBER: 2_5_A
ESTIMATED COST: $135,000

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 1.5 miles of three phase 12.47 kV to 24.9 kV and 12.5 miles of single phase 7.2 kV to 14.4 kV. Convert all three phase and 2630201 of single phase tap and 2632501, 2632401 of single phase tap. 77 transformers will be replaced. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

2631603, 2632501, 2632401, 2632601, 2631001, 2630801, 2630802, 2630201

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections fed by the above area fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout and single phase conversion was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 345

CWP ITEM NUMBER: 2_5_B
ESTIMATED COST: $79,500

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 9.5 miles of single phase 7.2 kV to 14.4 kV. Convert section 3210302. 14 transformers will be replaced. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections fed by the above area fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout and single phase conversion was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 347

CWP ITEM NUMBER: 5_4_A
ESTIMATED COST: $55,900

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 1.3 miles of single phase #1/0 ACSR 7.2 kV to three phase #1/0 ACSR 12.47 kV. Convert line from end of three phase to the middle of line section 4840401. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in sections 4841201 and 4840401 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 349

CWP ITEM NUMBER: 7_4_A
ESTIMATED COST: $120,400

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 2.8 miles of single phase #4 ACSR to three phase #1/0 ACSR in line section 0130101 and 0131201. Three phase down 31-E to Harold Heers subdivision. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections fed by 06-49-R01 fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 351

CWP ITEM NUMBER: 8_2_A
ESTIMATED COST: $259,450

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 4.9 miles of three phase 12.47 kV to three phase 24.9 kV and 21 miles of single phase 7.2 kV to single phase 14.4 kV. Convert to end of line section 4431901 and three phase tap including all single phase taps. Refeed from Galloway substation up to 43-89-R01. 160 transformers will need to be replaced. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

4441702, 4441703, 4441704, 4441601, 0210501, 0210403, 0210601, 0221002, 4441201, 4441202, 4441301, 4441101, 4441501, 4432001, 4431901

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections normally fed by 43-89-R01 fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 361

CWP ITEM NUMBER: 1_2_A
ESTIMATED COST: $4,300

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor 0.2 miles of three phase, # 1/0 ACSR to # 397 ACSR, in line section 4340302. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The conductor in section 4340302 is overloaded which does not meet design criteria #3.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the overloaded conductor will be replaced by new conductor, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 362

CWP ITEM NUMBER: 1_2_B
ESTIMATED COST: $8,600

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 0.2 miles of single phase, # 4 ACSR to three phase # 1/0 ACSR, in line section 0120601. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in section 0120601 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 363

CWP ITEM NUMBER: 1_2_C
ESTIMATED COST: $30,100

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 0.7 miles of single phase, # 4 ACSR to three phase # 1/0 ACSR, from line section 4342903 to location 43-77-075. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in section 4341701 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 364

CWP ITEM NUMBER: 2_3_A
ESTIMATED COST: $100,150

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 2.4 miles of three phase #1/0 ACSR 12.47 kV to three phase # 1/0 ACSR 24.9 kV. Convert 7.4 mile of single phase 7.2 kV to single phase 14.4 kV. Convert all three phase and place stepdowns on section 2531001, 25-95-R01, 25-74-VR1 and the end of section 2530302. 63 transformers will be replaced. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

2531102, 2530901, 2530801, 2530401, 2530201, 2530301, 2530302

REASON FOR PROPOSED CONSTRUCTION

The current level in sections 2530201, 2530301, and 2530302 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

A conversion of single phase to three phase was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 365

CWP ITEM NUMBER: 2_4_A
ESTIMATED COST: $60,200

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 1.4 miles of single phase, # 4 ACSR to two phase # 1/0 ACSR, in line sections 3710701 and 3710702. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in section 3710701 exceeds design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 366

CWP ITEM NUMBER: 3_4_A
ESTIMATED COST: $25,400

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 2.8 miles of single phase 7.2 kV to single phase 14.4 kV in line section 0740503 and 0740601. 12 transformers will need to be changed. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

0740503, 0740601

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections fed by this area fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 367

CWP ITEM NUMBER: 3_4_B
ESTIMATED COST: $2,650

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 0.3 miles of single phase 7.2 kV to single phase 14.4 kV in line section 0710801. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in section 0710801 exceed design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 368

CWP ITEM NUMBER: 4_1_A
ESTIMATED COST: $263,800

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 7.1 miles of three phase 12.47 kV to three phase 24.9 kV. Convert 18.5 miles of single phase 7.2 kV to single phase 14.4 kV in line section. Convert single phase sections 4520201 and 4520501. 165 transformers will be replaced. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

4421101, 4421202, 4421201, 4511201, 4511101, 4511102, 4511103, 4510501, 4510601, 4511001, 4510701, 4510702, 4510801, 4510901, 4520201, 4520502, 4520501

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections served by the above described area fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 369

CWP ITEM NUMBER: 10_2_A
ESTIMATED COST: $60,250

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 2.4 miles of three phase #4 ACSR 12.47 kV to three phase #4/0 ACSR 24.9 kV. Convert 2.6 miles of single phase 7.2 kV to single phase 14.4 kV. 57 transformers will be replaced. Convert and re-conductor all three phase and convert all single phase line along 68-80 west between West Glasgow and Beckton substations. Replace poles and equipment and relocate portions of line as required.

SECTIONS AFFECTED

4841502, 4332401

REASON FOR PROPOSED CONSTRUCTION

To replace aged and deteriorated #4 ACSR. In addition, this solution will provide adequate back-feed between West Glasgow and Beckton substations per design criteria #3. Also, a future industrial park will obtain power from this feeder.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #3, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 370

CWP ITEM NUMBER: 7_3_A
ESTIMATED COST: $43,000

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert and re-conductor 1.0 miles of single phase #4 ACSR to three phase #1/0 ACSR in line section 0111301 and 0111302. Three phase into subdivisions on Beechtree Lane from Roseville Road side. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in sections 0111301 and 0111302 exceed design criteria #13.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13, allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 371

CWP ITEM NUMBER: 8_2_B
ESTIMATED COST: $82,550

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 8.6 miles of single phase 7.2 kV to single phase 14.4 kV. Convert line sections 0221401 and 0311001. 55 transformers will need to be replaced. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections normally fed by 0221401 fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 372

CWP ITEM NUMBER: 9_1_A
ESTIMATED COST: $16,100

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 1.7 miles of single phase 7.2 kV to single phase 14.4 kV. Convert line section 3120401. 10 transformers will need to be replaced. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The voltage levels in sections normally fed by 3120401 fall below design criteria #1.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the voltage levels will meet design criteria #1, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 373

CWP ITEM NUMBER: 9_1_B
ESTIMATED COST: $9,500

DESCRIPTION OF PROPOSED CONSTRUCTION

Convert 1.0 miles of single phase 7.2 kV to single phase 14.4 kV. Convert line sections 2540901, 2540906 and 2540905. 6 transformers will need to be replaced. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The current level in sections 2540901, 2540906, and 2540905 exceeds design criteria #13

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work the current level will meet design criteria #13 allowing better sectionalizing, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

Conductor changeout was considered but was abandoned due to cost.

CONSTRUCTION ITEM - LINE CONVERSION

CFR CODE: 374

CWP ITEM NUMBER: ALL_ALL_A
ESTIMATED COST: $1,320,000

DESCRIPTION OF PROPOSED CONSTRUCTION

Re-conductor 120 miles of single phase, #6, #8 Copperweld and # 4ACSR to #2 ACSR. Replace poles and equipment and relocate portions of line as required.

REASON FOR PROPOSED CONSTRUCTION

The conductor is aged and deteriorated needing replacement.

RESULTS OF PROPOSED CONSTRUCTION

As a result of this work aged conductor will be replaced by new conductor, improving voltage drop and increasing reliability.

ALTERNATIVE CORRECTIVE PLANS INVESTIGATED

No alternative plans available.

SECTIONALIZING EQUIPMENT

(Additions and Changes)

CFR CODE: 603 ESTIMATED COST: $93,400

DESCRIPTION OF PROPOSED CONSTRUCTION

Remove 27 and install a total of 31 oil circuit reclosers (OCRs). Purchase 31 new OCR's as summarized on table below. This work necessary for adequate protection on distribution system as discussed earlier in Section II-D3.

NUMBER OF OCRs				COST OF NEW OCRs		
TYPE	SIZE	R/M	I/S	NO.	EACH	TOTAL
H	25	2	-			
	35	5	-			
	50	10	-			
		17	0	0	$ 1450	$ 0
L	35	1	-			
L	50	2	-			
L	70	12	-			
		15	0	0	$ 2,100	$ 0
E	15	-	0			
	25	-	6			
	35	-	9			
	50	-	7			
	70	-	9			
		-	31	31	$ 2,400	$74,400
WVE	560		1			
			1	1	$19,000	$19,000
WE	560	1	-	0	$19,000	$ 0
		1	0			
						$93,400

NEW DISTRIBUTION CONSTRUCTION ITEM - REGULATORS
(Additions and Changes)

CFR CODE: 604

ESTIMATED COST: $289,400

SECTION #	ADD	REMOVE	EST. COST
3821002 - SOURCE	3	0	$ 25,000
3720801 - SOURCE	1	0	$ 4,800
0111603 - SOURCE	3	0	$ 25,000
3621301 - SOURCE	1	0	$ 4,800
0621902 - SOURCE	3	0	$ 25,000
3710801 - SOURCE	1	0	$ 4,800
4431901 - LOAD	3	0	$ 25,000
4312601 - LOAD	3	0	$ 25,000
4841901 - LOAD	3	0	$ 25,000
3110101 - LOAD	3	0	$ 25,000
0122601 - SOURCE	3	0	$ 25,000
0621101 - LOAD	3	0	$ 25,000
0621801 - SOURCE	3	0	$ 25,000
0222001 - LOAD	3	0	$ 25,000
TOTAL			$ 289,400

NEW DISTRIBUTION CONSTRUCTION ITEM - CAPACITORS

YEAR: 2002
CFR CODE: 605

CWP ITEM NUMBER:
ESTIMATED COST: $20,000*

DESCRIPTION OF PROPOSED CONSTRUCTION

Capacitors used for power factor correction.

REASON FOR PROPOSED CONSTRUCTION

To correct power factor by use of fixed and switched banks, allowing the system to operate as efficiently as possible.

* EKPC furnishes capacitors

REPLACEMENT - POLES

CFR CODE: 606

ESTIMATED COST: $2,022,378

DESCRIPTION OF PROPOSED CONSTRUCTION

Replace all poles found to be physically deteriorated by FRECC's personnel throughout the system. It is estimated that approximately 617 poles per year will need to be replaced.

REASON FOR PROPOSED CONSTRUCTION

FRECC inspects one-seventh, approximately 7700 of the cooperatives poles each year. Historically, approximately 8.0 %, or 617 of these need to be replaced because of their poor physical condition.

HISTORICAL COST - POLE REPLACEMENTS

	24 MONTH HISTORY	
	3/00-2/01	301-2/02
Poles To Change:	550	787
Avg. Cost/Pole:	$ 701	$ 844
TOTAL EST. COST:	$385,550	$664,228

ESTIMATED COST - POLE REPLACEMENT

	EST. 48-MONTH WORK PLAN PERIOD				
	7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
Pole Replacements:	617	617	617	617	2468
Avg. Cost/Pole:	$ 799	$ 814	$ 820	$ 845	
TOTAL EST. COST:	$492,941	$502,132	$505,940	$521,365	$2,022,378

DISTRIBUTION AUTOTRANSFORMERS
(Additions and Changes)

CFR CODE: 609

ESTIMATED COST: $82,200

ITEM # *	ADD	REMOVE	SIZE (KVA)	EST. COST
2-3-A	0	3	500	($ 9,000)
"	4	0	500	$ 18,000
2-5-A	0	3	500	($ 9,000)
"	4	0	500	$ 18,000
3-4-A	0	1	500	($ 3,000)
"	2	0	500	$ 9,000
3-4-B	0	1	500	($ 3,000)
"	2	0	500	$ 9,000
4-1-A	7	0	500	$31,500
5-4-B	0	3	500	($ 9,000)
8-2-A	0	3	1000	($ 14,400)
"	3	0	1000	$ 21,600
"	3	0	500	$ 13,500
8-2-B	0	1	500	($ 3,000)
"	1	0	500	$ 4,500
9-1-A	0	1	500	($ 3,000)
"	1	0	500	$ 4,500
9-1-B	0	1	500	($ 3,000)
"	2	0	500	$ 9,000
TOTAL				$ 82,200

* SEE INDIVIDUAL CWP PROJECTS FOR LOCATION AND DETAILS.

OTHER DISTRIBUTION ITEMS - SECURITY LIGHTS

CFR CODE: 701 **ESTIMATED COST: $413,505**

DESCRIPTION OF PROPOSED CONSTRUCTION

Install approximately 405 outdoor security lights and associated poles per year as requested by consumer - members.

REASON FOR PROPOSED CONSTRUCTION

This work is necessary because of FRECC's outdoor lighting program.

HISTORICAL COST - INSTALL SECURITY LIGHTS

	24 MONTH HISTORY	
	3/00-2/01	3/01-2/02
Lights to Install:	420	391
Avg. Cost/Light:	$ 244	$ 243
TOTAL EST. COST:	$102,500	$95,000

ESTIMATED COST - INSTALL SECURITY LIGHTS

	EST. 48-MONTH WORK PLAN PERIOD				
	7/02-6/03	7/03-6/04	7/04-6/05	7/05-6/06	TOTAL
Lights to Install:	405	405	405	405	1620
Avg. Cost/Light:	$ 244	$ 251	$ 259	$ 267	
TOTAL EST. COST:	$98,820	$101,655	$104,895	$108,135	$413,505

OTHER DISTRIBUTION ITEMS - AMR

CFR CODE: 702 **ESTIMATED COST: $732,128**

DESCRIPTION OF PROPOSED CONSTRUCTION

A cost justification study was prepared and AMR proved to be the most economical and efficient method of reading customer meters. The TWACS system was chosen due to better communication pathways to the meter, which holds additional potential benefits when compared to other systems, including some load management features. The AMR system will be implemented over a four year period, starting in year two, so only 75 % of the meter modules will be included in this CWP.

REASON FOR PROPOSED CONSTRUCTION

This work is necessary to provide better meter reading information from the customer, improve workflow throughout the month, improve customer service and reduce customer complaints.

ESTIMATED COST – COMPUTER AND COMMUNICATION HARDWARE

TWACS HARDWARE FOR 12 SUBSTATIONS	$384,158
MODULATION TRANSFORMERS	$228,000
RADIO COMMUNICATION TO SUBSTATIONS	$120,000
TOTAL	$732,128

* 18,630 meter modules will be included in code 601

ECONOMIC CONDUCTOR CALCULATIONS
NEW CONSTRUCTION - 7.6/13.2 KV

O&M	TAX	INS	INT	$/KW	$/KWH	KW
8.90%	0.90%	0.25%	6.00%	5.22	0.023	4800
RMO	**RAT**	**KWI**	**KWHI**	**LGR**	**INF**	**m**
12	0.0%	3.00%	3.00%	4.00%	3.00%	30
LF	**PF**	**CF**	**N**	**KV**	**P**	
45.0%	95.0%	100.0%	0.85	7.6	3	

CONDUCTOR	2 ACSR	1/0 ACSR	4/0 ACSR	397 ACSR	795 ACSR
COST / MI	$37,000	$41,000	$49,000	$59,000	$79,000
OHMS / MI	1.583	1.034	0.573	0.257	0.117
TCOST / MI	$5,371,959	$3,624,219	$2,188,421	$1,233,552	$919,502
PWCOST / MI	$1,721,030	$1,175,610	$731,803	$440,884	$360,321

TOTAL ANNUAL COST PER MILE

YEAR	2 ACSR	1/0 ACSR	4/0 ACSR	397 ACSR	795 ACSR
0	$30,064	$22,490	$16,917	$13,854	$15,147
1	$32,889	$24,386	$18,047	$14,472	$15,586
2	$36,027	$26,488	$19,293	$15,145	$16,055
3	$39,514	$28,819	$20,669	$15,879	$16,556
4	$43,388	$31,405	$22,189	$16,682	$17,094
5	$47,693	$34,275	$23,868	$17,559	$17,671
6	$52,479	$37,460	$25,725	$18,520	$18,291
7	$57,800	$40,996	$27,779	$19,573	$18,959
8	$63,716	$44,923	$30,053	$20,728	$19,679
9	$70,296	$49,285	$32,570	$21,997	$20,457
10	$77,615	$54,131	$35,359	$23,391	$21,297
11	$85,755	$59,517	$38,450	$24,925	$22,208
12	$94,812	$65,503	$41,877	$26,614	$23,196
13	$104,888	$72,157	$45,678	$28,474	$24,268
14	$116,100	$79,555	$49,894	$30,526	$25,435
15	$128,578	$87,782	$54,573	$32,789	$26,705
16	$142,464	$96,931	$59,766	$35,288	$28,089
17	$157,919	$107,108	$65,533	$38,049	$29,601
18	$175,122	$118,429	$71,937	$41,100	$31,252
19	$194,271	$131,023	$79,051	$44,475	$33,059
20	$215,588	$145,036	$86,956	$48,210	$35,038
21	$239,320	$160,629	$95,740	$52,344	$37,207
22	$265,741	$177,982	$105,503	$56,922	$39,588
23	$295,159	$197,294	$116,357	$61,995	$42,202
24	$327,913	$218,789	$128,425	$67,618	$45,077
25	$364,384	$242,715	$141,845	$73,852	$48,240
26	$404,996	$269,349	$156,770	$80,767	$51,723
27	$450,220	$298,998	$173,371	$88,440	$55,562
28	$500,582	$332,006	$191,839	$96,955	$59,795
29	$556,666	$368,756	$212,386	$106,408	$64,466
TOTAL	$5,371,959	$3,624,219	$2,188,421	$1,233,552	$919,502

ECONOMIC LOADING LIMITS
(P.W. COST PER MILE)

KW	2 ACSR	1/0 ACSR	4/0 ACSR	397 MCM	795 MCM
100	120077	135108	159360	189801	229511
200	122369	136605	160190	190172	229701
300	126188	139100	161573	190791	230017
400	131535	142593	163508	191657	230460
500	138411	147084	165997	192771	231030
600	146813	152573	169038	194133	231725
700	156744	159059	172633	195742	232548
800	168203	166544	176781	197599	233497
900	181189	175026	181481	199703	234572
1000	195703	184507	186735	202055	235774
1100	211745	194985	192542	204654	237103
1200	229315	206462	198902	207501	238558
1300	248413	218936	205814	210596	240140
1400	269038	232409	213280	213938	241848
1500	291191	246879	221299	217527	243682
1600	314873	262347	229871	221364	245644
1700	340081	278813	238996	225449	247731
1800	366818	296277	248674	229781	249946
1900	395083	314739	258904	234361	252286
2000	424875	334199	269688	239188	254754
2100	456195	354657	281025	244263	257348
2200	489043	376113	292915	249586	260068
2300	523419	398567	305358	255156	262915
2400	559322	422019	318354	260973	265888
2500	596753	446469	331903	267039	268988
2600	635713	471917	346006	273351	272215
2700	676199	498362	360661	279912	275568
2800	718214	525806	375869	286719	279047
2900	761757	554247	391630	293775	282653
3000	806827	583687	407944	301078	286386
3100	853425	614124	424811	308628	290245
3200	901551	645560	442231	316426	294231
3300	951205	677993	460205	324472	298343
3400	1002387	711425	478731	332765	302582
3500	1055096	745854	497810	341306	306947
3600	1109333	781281	517443	350094	311439
3700	1165098	817706	537628	359130	316057
3800	1222391	855129	558366	368413	320802
3900	1281212	893551	579658	377944	325673
4000	1341560	932970	601502	387723	330671
4100	1403437	973387	623899	397749	335796
4200	1466841	1014801	646850	408022	341047
4300	1531773	1057214	670353	418544	346424
4400	1598232	1100625	694410	429312	351928
4500	1666220	1145034	719019	440329	357559
4600	1735735	1190441	744182	451593	363316
4700	1806778	1236845	769897	463104	369200
4800	1879349	1284248	796166	474863	375210
4900	1953448	1332649	822988	486869	381346
5000	2029075	1382047	850362	499124	387610

ECONOMIC CONDUCTOR CALCULATIONS
NEW CONSTRUCTION - 15.2/26.3 KV

O&M	TAX	INS	INT	$/KW	$/KWH	KW
8.90%	0.90%	0.25%	6.00%	5.22	0.023	4800
RMO	**RAT**	**KWI**	**KWHI**	**LGR**	**INF**	**m**
12	0.0%	3.00%	3.00%	4.00%	3.00%	30
LF	**PF**	**CF**	**N**	**KV**	**P**	
45.0%	95.0%	100.0%	0.85	15.2	3	

CONDUCTOR	2 ACSR	1/0 ACSR	4/0 ACSR	397 ACSR	795 ACSR
COST / MI	$39,000	$44,000	$52,000	$62,000	$75,000
OHMS / MI	1.583	1.034	0.573	0.257	0.117
TCOST / MI	$1,546,793	$1,137,261	$819,414	$632,076	$608,368
PWCOST / MI	$521,194	$397,066	$304,454	$254,650	$258,962

TOTAL ANNUAL COST PER MILE

YEAR	2 ACSR	1/0 ACSR	4/0 ACSR	397 ACSR	795 ACSR
0	$12,558	$11,342	$10,966	$11,471	$13,150
1	$13,354	$11,918	$11,368	$11,768	$13,426
2	$14,231	$12,548	$11,803	$12,083	$13,715
3	$15,198	$13,239	$12,274	$12,418	$14,017
4	$16,264	$13,997	$12,785	$12,774	$14,334
5	$17,441	$14,829	$13,340	$13,154	$14,666
6	$18,742	$15,743	$13,943	$13,559	$15,014
7	$20,179	$16,748	$14,600	$13,992	$15,380
8	$21,769	$17,855	$15,315	$14,456	$15,764
9	$23,527	$19,075	$16,097	$14,954	$16,170
10	$25,474	$20,419	$16,950	$15,489	$16,597
11	$27,629	$21,902	$17,884	$16,063	$17,049
12	$30,018	$23,540	$18,907	$16,683	$17,526
13	$32,665	$25,348	$20,028	$17,351	$18,032
14	$35,600	$27,347	$21,258	$18,073	$18,568
15	$38,855	$29,558	$22,609	$18,855	$19,138
16	$42,466	$32,004	$24,094	$19,701	$19,743
17	$46,474	$34,711	$25,728	$20,620	$20,389
18	$50,922	$37,709	$27,527	$21,618	$21,077
19	$55,862	$41,031	$29,510	$22,705	$21,812
20	$61,349	$44,713	$31,696	$23,888	$22,599
21	$67,444	$48,795	$34,108	$25,179	$23,442
22	$74,216	$53,323	$36,772	$26,588	$24,347
23	$81,742	$58,346	$39,715	$28,130	$25,320
24	$90,108	$63,920	$42,969	$29,816	$26,367
25	$99,408	$70,108	$46,567	$31,665	$27,497
26	$109,749	$76,980	$50,550	$33,692	$28,716
27	$121,248	$84,612	$54,958	$35,917	$30,035
28	$134,038	$93,090	$59,842	$38,362	$31,463
29	$148,264	$102,510	$65,252	$41,052	$33,012
TOTAL	$1,546,793	$1,137,261	$819,414	$632,076	$608,368

ECONOMIC LOADING LIMITS
(P.W. COST PER MILE)

KW	2 ACSR	1/0 ACSR	4/0 ACSR	397 MCM	795 MCM
100	119504	134734	159153	189708	229464
200	120077	135108	159360	189801	229511
300	121032	135732	159706	189955	229590
400	122369	136605	160190	190172	229701
500	124087	137728	160812	190451	229843
600	126188	139100	161573	190791	230017
700	128671	140722	162471	191193	230223
800	131535	142593	163508	191657	230460
900	134782	144714	164683	192183	230729
1000	138411	147084	165997	192771	231030
1100	142421	149703	167448	193421	231362
1200	146813	152573	169038	194133	231725
1300	151588	155691	170767	194907	232121
1400	156744	159059	172633	195742	232548
1500	162283	162677	174638	196640	233007
1600	168203	166544	176781	197599	233497
1700	174505	170660	179062	198620	234019
1800	181189	175026	181481	199703	234572
1900	188255	179642	184039	200848	235158
2000	195703	184507	186735	202055	235774
2100	203533	189621	189569	203324	236423
2200	211745	194985	192542	204654	237103
2300	220339	200599	195653	206047	237815
2400	229315	206462	198902	207501	238558
2500	238673	212574	202289	209017	239333
2600	248413	218936	205814	210596	240140
2700	258535	225548	209478	212236	240978
2800	269038	232409	213280	213938	241848
2900	279924	239519	217220	215701	242749
3000	291191	246879	221299	217527	243682
3100	302841	254488	225516	219415	244647
3200	314873	262347	229871	221364	245644
3300	327286	270455	234364	223376	246672
3400	340081	278813	238996	225449	247731
3500	353259	287421	243765	227584	248823
3600	366818	296277	248674	229781	249946
3700	380759	305384	253720	232040	251100
3800	395083	314739	258904	234361	252286
3900	409788	324345	264227	236744	253504
4000	424875	334199	269688	239188	254754
4100	440344	344304	275288	241695	256035
4200	456195	354657	281025	244263	257348
4300	472428	365261	286901	246894	258692
4400	489043	376113	292915	249586	260068
4500	506040	387216	299068	252340	261476
4600	523419	398567	305358	255156	262915
4700	541179	410168	311787	258034	264386
4800	559322	422019	318354	260973	265888
4900	577847	434119	325060	263975	267423
5000	596753	446469	331903	267039	268988

Voltage Comparison

Demand	Location	Recorder Voltage	Line Section	Milsoft Voltage	Diif.	
71867	43-69-036	123.3	4340901	122.3	-1	
	45-65-043	123.6	4531101	121.8	-1.8	
	38-33-022	123	3811501	125.8	2.8	system config changed
	01-73-046	123	131301	125.4	2.4	
71604	44-14-023	124.8	4410501	125.3	0.5	
	38-63-073	126.3	3831001	126	-0.3	
	43-48-033	124.2	4321202	123.4	-0.8	
	36-66-034	122.7	3641201	124	1.3	
62459	44-42-019	125.1	4430101	123.4	-1.7	
	38-42-032	123.3	3812501	124.9	1.6	
	43-59-060	125.1	4340801	124.7	-0.4	
	31-65-030	123.5	3130902	124.8	1.3	
63621	44-24-017	125.1	4410801	125	-0.1	
	38-34-032	123.6	3812202	125.5	1.9	
	48-69-073	122.8	4841201	123.9	1.1	
	31-63-047	123.6	3131002	125.1	1.5	
54101	44-44-023	124.5	4411002	125.1	0.6	
	38-43-031	124.5	3811901	125.2	0.7	
	31-82-020	124.8	3131403	124.8	0	
57977	44-28-058	126	4420701	126	0	
	31-84-012	123.9	3131501	124.5	0.6	
	32-43-006	121.8	3210501	124.6	2.8	regulator malfunction
	07-66-016	122.5	740501	123.8	1.3	
58662	43-88-166	122.5	4342901	124.1	1.6	
	44-48-027	126	4421502	126	0	
	38-67-041	122.7	3740701	125.4	2.7	
	37-89-011	124.2	3741302	125.4	1.2	
55359	48-76-068	124.8	4840802	125.2	0.4	
	37-35-018	125.7	3710501	125.2	-0.5	
64452	45-32-023	126	4511301	125.7	-0.3	
	36-58-044	123	3640702	124.4	1.4	
	07-35-039	123.6	711901	122.3	-1.3	
	26-62-022	120.5	2630101	122.7	2.2	
52752	44-36-050	123.2	4421601	125.2	2	
	38-88-080	124.2	3842101	125	0.8	
	31-68-040	125.4	3141101	125.3	-0.1	
	07-49-027	123.9	721801	124	0.1	
61972	43-64-077	124.2	4331001	121.7	-2.5	
	38-82-027	124.5	3831501	125.8	1.3	

	31-24-025	123.2	3110602	125.4	2.2
71369	38-66-060	122.4	3840902	124.9	2.5
	48-87-055	118.8	4842201	121.8	3
	02-76-057	121.8	240502	126	4.2 regulator malfunction
	37-38-051	119.4	3721301	120.3	0.9
62333	45-58-008	123.3	4540502	122.7	-0.6
	48-65-043	122.2	4831301	124.8	2.6
	38-87-024	124.5	3841801	122.5	-2
82522	38-26-022	120.3	3820902	121.2	0.9
	06-64-050	121.8	630501	120.8	-1
	36-45-034	119.2	3611201	123.1	3.9 regulator malfunction
82894	44-97-042	122.7	4441701	124.7	2
	38-16-044	120.9	3811002	121.2	0.3
	37-15-037	124.2	3131701	125.4	1.2
89220	39-72-055	122.1	3930302	119.7	-2.4
	08-15-018	121	820101	123.3	2.3
79741	02-69-029	116.5	240201	121.5	5
	01-89-108	124.5	141701	125.9	1.4
	37-73-144	124.8	3731002	124.9	0.1
	25-74-056	123.3	2530302	122.5	-0.8
58816	42-39-022	123	4220202	124.4	1.4
	02-11-001	119.8	120602	120.8	1
	01-57-027	122.7	140301	124.8	2.1
	02-09-052	125.1	220402	126	0.9
54739	02-53-031	125.7	230402	125.4	-0.3
	02-13-035	119.7	210701	120.6	0.9
	01-52-043	124.2	130101	124.7	0.5
69677	02-28-028	122.5	220702	124.6	2.1
	02-94-024	124.2	232301	124.1	-0.1
	07-29-020	123.9	721401	125.3	1.4
	08-24-030	123.3	811001	124.8	1.5